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ORIGINAL ARTICLES.

FEL BOVIS INSPISSATUM—ITS IMPORTANCE AND USES AS A THERAPEUTIC AGENT.[1]

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THIS old-time remedy, ox-gall, appears to have been sadly neglected in the mad rush for new remedies. Frequently it is omitted by writers upon therapeutics, while others grant to it only a passing notice. Yet, it is still retained in the pharmacopœias of the United States, Great Britain, Germany, etc., as one of the medicinal agents that can be used to relieve the sufferings of the human race.

In my experience it is one of the most valuable remedies that we have at our command. Without ox-gall it would be almost impossible to treat successfully and satisfactorily that great class of maladies commonly described under the title of functional derangements of the digestive and hepatic system. With the hope of being able to bring to light some satisfactory results that can be attained with ox-bile, administered either alone or in combination, this article has been compiled.

Primarily it can be asserted that all abnormal or diseased conditions, either acute or chronic in character, are largely dependent upon an imperfectly effected digestion and assimilation; that, so long as the physiological nutritive vitality is perfectly maintained, very few diseases either acute or chronic can gain access to, or originate within, the system and develop sufficient power to make their presence manifest. But whenever the vitality is lowered, then the system is quite prone to take up extraneous and deleterious substances, and to develop all forms of acute and chronic diseases, the character and intensity of the infecting agent determining in a large measure the final result. To combat successfully these damaging effects, the digestion, the hepatic and nervous functions, must be raised to, or even carried beyond, the normal standard, so that the vital powers may be maintained until the infecting agent can be subdued and removed from the system. Having accomplished this, Nature is placed in a position in which she is capable of sustaining the bodily functions, and, at the same time, of repairing the damage to the various tissues and glandular structures, until finally the human economy again becomes normal.

Assuming, in the first place, that all forms of extraneous and poisonous substances which are introduced into or are developed within the system are carried to the liver, and there acted upon by the chemico-physiological transforming power of the protoplasmic masses composing the cells of that organ, it is quite easy to see and comprehend how derangement, faulty action, or even an absolutely pathological condition, of these cells is developed. Any one of these three conditions will disturb normal action on the part of the liver, and will tend to lower the quality of the bile produced. This imperfectly formed biliary fluid, on reaching the alimentary canal, will be unable to assist, as it should, the digestive functions of the intestine; and, as a sequence, fermentation is rapidly excited within the bowel, producing many deleterious products, which pass through the entero-hepatic circulation and reach the liver, thus increasing the work of an already overtaxed organ. This, together with the damaging effects of the original poison and imperfect oxidation, explains the chief factors in the development of increased bodily heat in connection with all diseased conditions. In this manner the process continues repeating its injurious effects upon the system, until Nature, by her inherent power, grants relief by destroying or eliminating the poisons, or is aided in so doing by the skilful administration of some medicinal agent. In a certain percentage of cases, however, both the inherent power of Nature and the skill of the physician are held in abeyance.

Taking this view of the situation, the first indication to be fulfilled in the treatment of disease is to rid the system as rapidly and easily as possible of its original, old, and deteriorated bile, and quickly replace it with some of a better quality that has been derived from a young and healthy herbivorous animal. This line of reasoning has led me to use the inspissated ox-bile very extensively during the past ten years—with this conclusion: that fel bovis inspissatum is indispensable in the treatment of almost every pathological condition. This is especially true in all individuals who have passed their prime and are in the decline of life. After this extensive use of ox-bile as a therapeutic agent in all kinds of disease, and upon all classes of patients, I feel

[1] Read before the Section on General Medicine, New York Academy of Medicine, February 21, 1891.

warranted in speaking with some degree of certainty in regard to its physiological action and therapeutic power.

It is hard, if not impossible, to give a complete picture of the physiological action of fel bovis. The function, however, of the bile in the physiological economy,[1] as we understand it to-day, if fully comprehended, covers the chief physiological action of fel bovis inspissatum. The changes, however, which its presence in the alimentary canal and the system in general causes, together with the therapeutic indications for its use, will enable us to appreciate what can be attained by its administration.

In Brunton's most valuable work this statement is found: "Bile precipitates pepsin, and interferes with the digestion of albuminous substances in the stomach. It seems to irritate the mucous membrane and give rise to headache and vomiting. It does not aid the digestion of farinaceous food. It quickens the absorption of fats; it prevents to some extent putrefactive changes in the intestinal contents, and it quickens peristaltic action." My experience is somewhat in opposition to some of these statements, but if we stop and analyze the subject carefully the difference will probably be found to be apparent rather than real.

There is no doubt that bile which is of impure quality, regurgitated from the intestines, will irritate the mucous membrane, precipitate pepsin, and even retard, rather than favor, digestion; but new bile which is good in quality will not, as a rule, irritate the stomach, and it very materially aids in the perfection of the digestive process, especially after the removal of the old and deteriorated bile. In case an unduly irritable stomach is encountered, the distress which might be attributed to irritation arising from the presence of newly-administered bile in the stomach, can easily be prevented by adding one grain of cocaine to each capsule containing the fel bovis. My observations and clinical cases, which are not few, strongly favor the assertion that newly-acquired bile is not irritating to the gastric mucous membrane, and does very materially augment the digestive process effected in the stomach.

The first principle, however, in the treatment of all abnormal physiological conditions must not be forgotten, namely, that the old and useless bile must first be forced out of the system.[2] When this has been accomplished, the system is placed in a position to accept, utilize, and be benefited by a new supply of bile of improved quality. That the digestive and nutritive functions of the body are augmented is shown by a marked improvement in the general condition of the patient and by positive changes in the composition of the urine.

[1] THE MEDICAL NEWS, January 24, 1891, p. 90.
[2] Ibid., February 28, 1891, p. 245.

First. In a well-defined abnormal case, before ridding the system of its old bile and substituting a new supply, the amount of urine is usually found to be scanty, high-colored, hyper-acid, and of high specific gravity, ranging between 1025 and 1035. The amount of urea is decidedly diminished in quantity, with an excessive amount of uric acid, urates, or oxalates, and it often contains bile-pigment and biliary salts. Owing to the large quantity of uric acid such a sample will remain acid in reaction for days, weeks, or months, before alkaline fermentation is developed. When this does occur the products of its fermentation will be ammonium carbonate, free ammonia, carbon dioxide, ammonium urate, and the ammonio-magnesium phosphate crystals, together with a more or less complete disappearance of the uric acid crystals.

Second. Where the abnormality is less marked and the digestive and assimilative functions are more perfectly performed, but are not yet normal, the time elapsing between the discharge of the urine and the development of the alkaline fermentation is shorter. The duration of the acidity varies with the degree of the digestive and hepatic disturbances. The urine is less likely to contain bile than in the former case. The products of the alkaline fermentation are practically the same as in the former instance, excepting the formation of ammonium urate, which is usually absent.

Third. After expulsion of the old bile and the introduction of the new and improved ox-gall, the flow of urine becomes more abundant and normal in quantity, lighter in color, less acid, of lower density, and contains a larger percentage of urea with a corresponding diminution in uric acid, urates, and oxalates. When the normal standard is reached, the urine will change from its faintly acid reaction to that of alkaline fermentation in from twenty-four to forty-eight hours. The products of fermentation will now be what may be called normal, namely, ammonium carbonate in abundance, free ammonia, carbon dioxide, and an excessive amount of crystals of ammonio-magnesium phosphate.

By this method of prolonged study of the urine, we are enabled to determine with a wonderful degree of accuracy the perfection of the digestive, hepatic, and assimilative processes of the body. From its results we can tell whether our patients are improving in their nutritive condition or whether they are losing ground, no matter what symptoms may be presented. By it we have, as it were, a perfect key to the working of the chemico-physiological laboratory of the system. With these physiological laws in mind we are in a position to appreciate what can be accomplished by the internal administration of the fel bovis inspissatum. In fact, all the good that

can be obtained from the use of the bile must come from its action upon the digestive, hepatic, and assimilative functions of the body.

The administration of ox-gall is indicated under all circumstances where there is a faulty digestive action, poor nutrition, and abnormal urine. It should always be administered in the form of a capsule, which should contain from two to five grains of the inspissated bile, the former being the preferable dose, either alone or in combination with other medicinal agents.

When taken in this form it temporarily retards the flow of hydrochloric acid from the gastric mucous membrane, and stimulates a more copious discharge of a more active milk-curdling ferment. This temporary decline in the acid constituents of the gastric juice gives time for the milk-curdling ferment to precipitate the casein in the form of fine feathery flakes. When the acid and peptic secretion is reëstablished by the irritation of the precipitated casein there results a more rapid and perfect peptonization in the stomach of this proteid of the milk.

The truth of these statements can easily be demonstrated by administering some capsules containing ox-gall to an individual who cannot under ordinary circumstances digest milk, when he will cease to throw off the tough, leathery curds of precipitated casein, which he previously did. If an emetic is administered after a suitable time has elapsed since the ingestion of the milk, preceded by the fel bovis, the precipitate in the stomach is found to be composed of fine feathery particles, in which form it is most rapidly acted upon by the peptic ferment.

Ox-bile also stimulates a more active flow and an improved quality of pepsin, as is shown by the more rapid and perfect digestion in the stomach of all the different kinds of proteids. By producing this perfect peptonizing action upon the proteids in the stomach the amount of work to be accomplished by the pancreatic and intestinal juices is considerably decreased and a more perfect digestion of the remaining food-stuffs, which have reached the intestinal canal in an undigested state, will take place.

A certain amount of the bile which has been administered *per os* passes through the stomach into the intestinal canal and there helps in the digestion of all food-stuffs. It now takes the place of the biliary fluid which the liver is not capable of producing, or of the old and imperfect bile which has or ought to have been expelled from the system by a cholagogue cathartic. Once in the intestine, we are justified in saying that this newly-acquired bile decidedly aids in the diastatic and peptonizing actions which are completed at this point, and is a mighty factor in rendering the nutritive pabulum more thoroughly diffusible. It also prevents decomposition, and decreases in a large measure the amount of effete or poisonous elements that can be taken up with food-stuffs to the liver. In this manner a certain amount of irritative matter is prevented from gaining access to the system, and to that extent the amount of work imposed upon the glandular structures of the body is reduced.

The newly-added bile further acts as a natural stimulant to the muscular coat of the intestine as a whole, thus causing the general peristaltic action to be increased. Again, some of the ingredients of the bile stimulate the small muscles of the villi, and greatly augment the activity of their contained lymphatic vessels,[1] causing them to pump the fat more rapidly through and out of the epithelial cells —which form the external covering of the villi—and to discharge it into the deeper lymphatics, to be carried on to the general circulation.

It also stimulates the alimentary secretions, which help to lubricate the intestinal surface, favoring a more natural and easy onward movement of the contents of the gut, thereby tending to prevent or overcome any existing constipation.

The bile also stimulates the vital activity of the epithelial cells lining the alimentary tract throughout, and by so doing causes them to absorb more rapidly all food-stuffs which have been converted into a diffusible pabulum ready for absorption, discharging the peptones and glucose easily and quickly into the entero-hepatic circulation, while the fats pass through the lacteals to finally reach the circulation at the origin of the left brachio-cephalic vein.

By converting all the food-stuffs into a thoroughly and easily diffusible fluid, by decreasing to the minimum the products of intestinal fermentation, and by stimulating the activity of the gut in this way, we have produced a condition which favors the most rapid absorption attainable, with the least expenditure of force, and, as a result, there is carried to the liver and system at large a completely digested intestinal product—a nutritive pabulum which contains the smallest possible amount of effete or deleterious matter.

With this nutritive fluid a certain amount of the newly administered bile is also carried to the liver, where it is seized upon by the hepatic cells, and a portion retransformed into biliary fluid, which again reaches the alimentary tract by the natural channel. The balance, by its presence in the liver, aids very materially in those chemico-physiological transforming actions which are so extensively carried on by the protoplasmic elements constituting the hepatic cells. As a sequence of this phenomenon

[1] THE MEDICAL NEWS, January 24, 1891, p. 90.

we have discharged from the lobules of the liver into the hepatic system of vessels a more perfect nutritive pabulum, and one that is almost entirely free from extraneous or poisonous matter—a nutritive fluid that can be quite easily utilized for the growth, development and maintenance of the body tissues, and for the support of the secretory and excretory glandular structures. All this is accomplished with a small total expenditure of oxygen, provided that the food-stuffs taken are chiefly of the CHNOS group; and at the same time there is formed, to be eliminated from the system by the excretory organs, the most complete products of tissue-waste, namely, urea, carbon dioxide, and water. This naturally decreases to a very marked degree the excretory strain upon the glandular organs, which have for their function the task of removing from the body waste products resulting from the chemico-physiological transformations produced as the result of vital action.

But one thing can follow such a chain of events, and that is a more or less rapid restoration of all parts of the body to a normal physiological standard, with a disappearance of all abnormal symptoms; in fact, a complete cure of whatever diseased condition may have existed at the time treatment was instituted.

In the light of this knowledge, ox-bile becomes one of the most potent, if not the only true, physiological antipyretic agent at our command. This statement is especially true as regards typhoid fever, and in all those diseases in which intestinal irritation is marked. In all infectious diseases, where some poison has been introduced into the system, either in the form of a microörganism, ptomaine, leucomaine, toxine, or some unknown quantity, the first deleterious effect of the infecting agent is to disturb the functions of the liver and of its bile-producing power, as evidenced by the coated tongue, the primary constipation, the clay-colored stools, the high-colored acid urine of high density with a diminished quantity of urea and an increased amount of uric acid, urates and oxalates—all of which indicate incomplete digestion and imperfect or excessive oxidation, and an impaired nutrition.

While ox-bile may not be able to kill the original germ or destroy the ptomaine, leucomaine, or poison which is producing the specific disease, it does furnish to the system a new supply of a very necessary agent, and one which the animal economy, by its own inherent power, is not capable of producing, and without which the bodily functions cannot be perfectly performed. The fel bovis prevents intestinal fermentation, improves the digestive act, and decreases the amount of damaging material which can be absorbed from the lumen of the gut. It also increases the total amount of the nutritive pabulum which is to be carried into the system.

With the absorption of food-stuffs a certain quantity of this newly-introduced bile is also carried to the liver, and very decidedly aids in the action of the hepatic cells, all of which tends to reduce irritation, improve oxidation, assimilation, and the nutritive powers throughout the system. When this has been accomplished the animal economy is capable of destroying or removing the original poison which, before this, tended to multiply and become more intense in its action.

In this way the bile becomes a truly antipyretic agent and decidedly lowers bodily temperature; but while it may not be able to completely reduce the temperature, it nevertheless keeps it within living bounds, sustains the vitality of the system until the disease has run its course and has been eradicated from the body. It will not cure the disease, but it will very decidedly shorten the duration and diminish the intensity. Another good effect from the action of ox-bile in the treatment of typhoid fever is the small amount of tympanites present after its use. It also diminishes diarrhœa, and the cerebral symptoms are milder under its influence. There is also noted a more copious flow of urine, more urea, less uric acid, urates, and a diminished liability to albumin or casts.

For the past few years several of my colleagues have been following this plan of treatment with me, and so far there has not been a single death among our typhoid patients. The duration of the disease has been shorter and the attack milder as compared with many that we have seen in the past. This favorable showing has been limited to a small number of cases, not more than fifty in all. If carried into the hundreds it may be found to give no better results than many other lines of treatment; but theoretically, and from the results so far obtained in the practical line, and from its being in keeping with well-established physiological laws, it ought to continue to yield good results in the majority of instances. In so far as ox-bile prevents intestinal fermentation and improves nutrition, it will lower the temperature in all febrile conditions.

In the treatment of nephritic diseases it is the chief agent to be relied upon to enable the system to improve the digestive and hepatic action and the nutrition at large, and that of the kidney protoplasm in particular. By establishing a more perfect assimilation throughout the body, it very decidedly decreases the amount of excretory work to be accomplished by the renal epithelial cells. This achieved, the albumin and casts disappear from the urine and the renal excretion returns to a perfectly normal standard. The rapidity with which this change can be effected is almost beyond comprehension. The renal lesion is cured, physiologically speaking, although the kidney remains irreparably

damaged from a purely histological standard. This distinction between a physiological and a histological cure has been too often overlooked, and many diseases are classed as incurable because the pathological condition cannot be completely eradicated, while the damaged organ can be made to perfectly perform its functions and remove every trace and symptom of disease from the system.

To enumerate all the good that can be accomplished by proper feeding and the internal administration of ox-bile would be tedious. Enough has been given to fully illustrate the physiological principle of the action of fel bovis, which can easily be applied to a greater or less degree in dealing with all kinds of pathological problems.

One more action and use, however, must not be forgotten in connection with ox-bile, and that is its great power and activity in softening and removing fæcal matter from the colon, in connection with chronic constipation or where impaction has occurred. The fel bovis alone, or perhaps better in combination, as in the following formula, will soften and remove quite effectually impacted fæces and stimulate the lower bowel to action when all other means have failed. It is also a very powerful agent for bringing away the gas and relieving troublesome tympanites:

℞.—Inspissated ox-bile . . . ℥j.
Glycerini . . . . . ℥iv.
Ol. ricini . . . . . ℥ij.
Aquæ . . . . . q. s. ad ℥viij.—M.

Sig.—This added to a pint, or better still, a quart of warm soapsuds; the larger amount can be retained when slowly injected into the lower bowel.

After several copious injections have been administered and retained for a time and have come away without producing the desired effect, we are justified in assuming that the colon is free. This has been verified with sufficient frequency in the dead-house to warrant the statement that it will invariably soften and remove fæcal matter from the colon. Of course, excepting a tight stricture of the colon or an occlusion of the lumen of the gut, which cannot be passed by the enema.

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TWO CASES OF EMPYEMA.

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IN THE MEDICAL NEWS for February 21, 1891, Dr. Goggans has a most interesting and practical article on the "Surgical Treatment of Empyema," and if not trespassing too much, I would like to supplement his article with a rather meagre, I regret to say, report of two cases of empyema, which came under my care while resident physician in the Rochester (N. Y.) City Hospital.

I shall be obliged to give the histories of the cases from memory, as I have no data at hand; but both cases were so forcibly impressed on my mind that, although I shall not be able to give minute facts, yet I can give enough of a general outline of each to illustrate my point, viz.: the result of prompt surgical interference in one case, and the result of no such treatment in the second:

CASE I.—Male, Italian, about thirty-five years of age. Was admitted with a history of having caught cold; some fever, cough, dyspnœa, and but little expectoration. On examination it was found that the left chest gave evidences of a large accumulation of fluid, and from the previous history it was decided that this fluid was of a purulent character, and that its evacuation was necessary. The man was in good general physical condition, and consequently the case was one from which the best of results could be expected. In order to confirm the diagnosis of empyema the aspirator was used, and several ounces of pus were drawn off. It was then decided that the best course to pursue was to make an incision and establish free drainage, and afford opportunity for irrigating the pleural cavity. Dr. Charles Dewey, the visiting physician, operated, making the incision in the intercostal space, as low down as possible, and without interfering with the ribs, in order that the freest drainage might be obtained. The operation was followed by no unfavorable symptoms, and I think this was in a measure due to the aspiration, on the day before, which allowed partial expansion of the lung.

The after-treatment of this case was to me the interesting part, and the method pursued was, to the best of my knowledge, the idea of Dr. Dewey.

A rubber drainage-tube, about ten inches in length, was introduced into the cavity as far as possible (about four or five inches), leaving about the same length outside the chest-wall. This was secured in place by threads sewed through the tube, which were attached to the chest-walls with strips of adhesive plaster. A glass tube, about four inches in length, was tightly fitted to the rubber tube, and to the other extremity of the glass tube was attached a second rubber tube, which extended over the edge of the bed to the floor, the end resting in a glass jar, which was partially filled with a 5 per cent. solution of carbolic acid. An antiseptic dressing was placed over the wound and around the tubing where it entered the chest, so that it was next to an impossibility for air to enter, as the tubing which passed into the pleural cavity was large, and fitted so snugly that the patient complained of it.

Twice a day for a week or ten days after the operation the pleural cavity was carefully but thoroughly irrigated with a solution of bichloride, 1 to 3000, the tube being disconnected at the glass connection, but before this was done it was carefully pinched between the fingers until the connection was made with a fountain syringe.

Of course the progress was slow, as empyema is

not as easily cured as acquired, but the patient made a good recovery, with but few unfavorable symptoms, and with but slight diminution in lung power and capacity. He returned to the hospital some months after his discharge, and stated that he was in as good health as he had ever been, and suffered no inconvenience in his chest.

The measurement of his left chest, on expansion, was slightly less than that of the right, but there was no perceptible difference in action.

CASE II.—Male, barber, about twenty-five years of age. Admitted with history of having taken cold; chills and fever, increasing dyspnœa, which was very marked at time of admission, and short, hacking cough.

Patient said he had been to see a doctor (?), but had steadily been losing ground. Was expectorating a large amount of extremely foul pus. Heart-beat was rapid, but fairly strong. General physical condition greatly impaired.

The right chest gave evidences of fluid throughout its entire extent, and with the history and the purulent expectoration, empyema with a pleuro-bronchial fistula was diagnosed.

During the first night he spent in the hospital it was necessary to remove him from the general ward, as the odor from the pus expectorated polluted the air of the ward, and annoyed other patients.

On the next afternoon Dr. W. S. Ely, visiting physician, made an incision into the pleural cavity, and immediately there was an escape of large quantities of pus and air, the latter confirming the opinion that there was a connection between the pleural cavity and the trachea. The dyspnœa was greatly increased after the operation, as the sound lung would not act as well after the removal of the pus. Patient failed rapidly, and died on the following morning. The autopsy showed that the right lung was pressed so closely against the spinal column that it was impossible for air to have entered it at all, and even after the relief of the pressure caused by the pus there was no expansion. There was a fistula connecting directly with the bronchus which admitted a lead-pencil. The walls of the pleural cavity were covered with a purulent exudate.

These are, to my mind, two illustrative cases, the first showing what may be accomplished by active measures, and the second, what may occur if the condition is not recognized and properly treated. In all probability, both cases were pleurisies with effusions, and gradually changed into empyemas.

Fluid in the pleural cavity is a condition which every practitioner should be able to recognize and properly treat, but how often this condition is carelessly passed over as a "cold," "malaria," etc.

Often obstinate cases of pleurisy with effusion occur, which will give way to no form of treatment except the repeated use of the aspirator, and occasionally not even to that.

In empyema the best form of procedure, according to most authorities, is incision, free drainage and careful antisepsis. I do not see why we should hesitate to remove pus from the pleural cavity any more than from an abscess.

All authors agree that surgical treatment is the only proper procedure in the case of empyema.

Austin Flint[1] says: "In the treatment of suppurative pleuritis, no reliance is to be placed on measures to cause absorption of the purulent liquid. If the pleural cavity contain pus in considerable quantity it will not be absorbed; but if life be sufficiently prolonged, and thoracentesis be not resorted to, it will, sooner or later, make its way either into the air-passages or through the thoracic walls. Hydragogues, diuretics, blisters, etc., will not only prove unavailing, but they do harm by impairing the powers of the system. Thoracentesis should be performed as soon as the purulent character of the liquid is ascertained. Aspiration may be employed and repeated, but in many cases, owing to the reaccumulation of pus, this mode of performing thoracentesis will prove unsatisfactory. An opening should be made at the bottom of the pleural sac, allowing the pus to escape freely." This author goes on to state that this incision must be kept open by means of an "oakum tent," and the cavity cleansed with a solution of carbolic acid. This method is somewhat crude, as "oakum tents" and "carbolic acid solutions" are methods of the past, as the general tenor of the operation is toward surgical treatment.

Alfred L. Loomis[2] makes the following statement: "In the treatment of this affection it is useless to attempt to produce the absorption of the purulent accumulation by remedial agents. Its removal can only be accomplished by mechanical means—either by aspiration or by making a permanent opening in the chest-walls." Loomis advises the use of the drainage-tube, but does not favor irrigating the cavity, even though the pus becomes fœtid. The author may have been unfortunate in the irrigating process, but I do not think it possible for a perfect drainage to exist without this part of the treatment.

Wyeth, Erichsen, and, in fact, the majority of modern writers, advise thoracentesis, though all have their special "hobbies" in the minute details.

Dr. Goggans, in his article, advises repeated aspirations before resorting to the "open operation," but I think, in a measure, this depends on the character of the pus and the condition of the patient. A difference of opinion exists in regard to the advisability of aspiration or the "open operation," different writers claiming better results for each, but one fact is agreed upon by all, viz.: that the pleural cavities in these cases should be emptied. I think Dr. Goggans is right in opposing the view taken by Dr. Schede, of Hamburg, who favors resection of

[1] Practice of Medicine, page 142.
[2] Practical Medicine, page 161.

the rib. This seems to be unnecessary, unless the drainage-tube is compressed by the ribs, in which case it would certainly be advisable to remove a portion of bone; but unless this occurs, it seems useless to weaken the chest-wall.

Dr. A. R. Elliott, of this hospital, while in general practice, saw a case of empyema with a bronchopleural fistula, the sequelæ of typhoid fever and pneumonia, which recovered without surgical interference; but, of course, this is one in a thousand cases.

I think Dr. Lydston's case (quoted by Dr. Goggans) tallies very well with my second case, in being one of those which is unrecognized or neglected. In this case the man had been on board a trans-Atlantic steamer from the outset of the disease, and apparently nothing of any account had been done for him.

Perhaps my second case might be called a pyopneumothorax, but I report it here, as there must have been a purulent accumulation in the pleural cavity some time before the formation of the fistula.

I trust those who read this article will not think I am trespassing, but empyema may occur in insane people, and physicians in insane hospitals should be as much interested in diseases of the chest, abdomen, etc., as in mania, melancholia, circular insanity, or general paralysis.

ON THE REFORM IN NUMBERING PRISMS.

BY SWAN M. BURNETT, M.D., PH.D.,
OF WASHINGTON, D. C.

SOME time ago I had the opportunity of seeing a manuscript submitted for publication which dealt with a new method of designating anomalies in the refraction of the eye. The system consisted essentially in the adoption of a varying index of refraction in the media as expressive of the varying refracting power. The points were well taken, the argument was logical, scientific, and conclusive; but I do not believe the system ever came, or is likely to come, into general use, for reasons which are too apparent to require mention.

When I first saw the proposition to use what is called the centrad as a method of designating prisms, this ingenious system of marking ametropia instantly came into my mind, probably because of its analogous cleverness and ingenuity. For I hasten to say that the centrad *is* an ingenious conception, as are all the conceptions which originate with Dr. Dennett; and as a work of ingenuity I admire it as much as anyone can. But in this work-a-day world, where we have to deal with only average intelligences, and where prejudices of tradition and custom and the inertia of established habit are the greatest obstacles we have to advancement in all lines of scientific study and work, any radical innovation which requires a reëducation from the very foundation can hope for success only when it possesses a practical advantage over all competitors, which can be easily demonstrated to the most ordinary comprehension. That, in my opinion, the centrad does not possess such advantage in the numbering of prisms I have stated in my paper in the January number of the *Ophthalmic Review* and given my reasons therefor. Those interested in the question I would refer to the paper itself as expressing in general the arguments which I conceive to be valid against it and the minimum angle of deviation, and those in favor of the prism-dioptry.

The object of this present communication is to reply as briefly as possible to some strictures on that article, made by Dr. Randall in the issue of THE MEDICAL NEWS for April 4th.

Among other things, he says: "The prism-dioptry, which is a tangent measurement, declines in value with each increase of the angle." What he should have said, and what he probably meant, is that the tangent, being a growing function, *increases* with the value of the angle until the latter reaches 90°, when the tangent is *infinitely great*. There is nothing that is absolutely contrary to the truth in that simple proposition, but it has the defect of not telling the whole truth. He makes the mistake of assuming that we are compelled to regard the deflection caused by a prism on a plane at any given distance in the light of a tangent. Now, as I have stated in the paper referred to, we are compelled to do nothing of the kind. We can, without surrendering any scientific principle, regard the deflection as a displacement, measurable in a linear manner on this plane, without regarding its reciprocal as expressed in sine, tangent, co-sine, co-tangent, degree, minute, or second, or in any other way that may be fancied. The absolute difference, however, between the multiples of the sine, tangent, and arc, for even a prism of 10°, which is higher than is, or should be, used in practice, is really insignificant:

Tang. 1°= 0.01745.	Arc 1°= 0.01745.	Sin. 1°=0.01745.
Tang. (10x1) 10°=0.17633.	Arc (10x1) 10°=1745.	Sin. (10x1) 10°=0.017365
Diff., 0.00183 less.	No difference.	Diff.= 0.00085 more.

How simple and easy it is to explain to even the uninitiated that a No. 1 prism is one which causes a deflection of one centimetre on a plane at a distance of one metre; No. 2, two centimetres; No. 3, three centimetres, and so on. That represents exactly and truly the amount of work done by the special prism so designated, and that is precisely what we want to know. We care nothing, practically, about its reciprocals expressed in angles, any more than in co-sines or co-tangents; and yet we can find these if, from curiosity or for scientific reasons, we so desire, from the ordinary table of sines, co-sines,

etc., just as we now have to find these reciprocals from the angle. And the fact that the angle of twenty prism-dioptres is not exactly twenty times the angle of one prism-dioptre is a matter of no practical consequence whatever, because we have not, nor need we have, anything to do with angles, any more than when we are dealing with spherical and cylindrical lenses—which, after all, are only series of prisms of constantly-varying deflection.

What is our standard for refracting lenses? One which causes a deflection of all parallel rays to a point on a plane at a metre's distance. What should be our standard for prisms in harmony with this? Naturally, one which causes a certain deflection at the metre plane; and what more appropriate and in keeping with our accepted standard of linear measurement than to have this unit deflection one centimetre? This is in consonance with the C. G. S. system, which is assumed as the basis of the centrad. The prism-dioptry is not only strictly scientific and exact in what it professes to do, namely, to give the deflecting power of any given prism, but it is marvellously simple in principle, is in perfect harmony with the metric system of numbering spectacle lenses, and is easily practised by anyone having a metre measure and a centimetre scale.

We are taken to task by Dr. Randall, because we asserted that neither Dr. Dennett nor any of the advocates of the centrad had offered any practical method of measuring the power of prisms according to the radian system. He says: "Dr. Burnett has befogged himself by importing into the centrad system the 'minimum deviation,' which has no place there. Like the prism-dioptre, the centrad is a prism which at one metre distance deflects the ray of light falling at right angles upon one of its faces through the space of one centimetre, the only difference being that the centrad is measured on the arc and not on the tangent."

When we read that paragraph we wondered if Dr. Randall had re-read Dr. Dennett's original paper recently and was aware of what Dr. Dennett actually proposed in his centrad system. Dr. Dennett says nothing at all about measuring one centimetre on the arc at the metre's radius. He expresses his unit only in reciprocal angles, and says: "We define the ideal centrad as an achromatic prism that produces in light passing through it in a direction perpendicular to one of its faces a deviation of one one-hundredth of a radian, or 0.57295°." This was the basis of our remark that the centrad could not perform any function which was not now equally well performed by the minimum angle.

Those of us who advocate prism-dioptry are glad to have its principles acknowledged and accepted, but not exactly in the way Dr. Randall has done. To Mr. Prentice alone belongs the credit of having proposed as a standard prism one which produces a deflection of one centimetre at one metre's distance, and no advocate of the centrad ever hinted at it until after the appearance of Mr. Prentice's paper in the *Archives of Ophthalmology*. We owe the simplicity of that idea to Mr. Prentice; let us not deprive him of whatever honor belongs to the conception. But if the advocates of the centrad desire to abandon their original idea of the reciprocal angle and will accept the curvilinear deflection of one centimetre at a metre's distance as a basis of numbering, the difference in principle between that and the prism-dioptre would not be great. The difficulty, however, as was foreseen by Mr. Prentice and myself, is that the curvilinear measure is not so easily or readily made as the purely linear, and the practical advantage we saw was greatly in favor of the latter. It is so much easier to measure deflections on a plane than on a curve.

We would like to enter here into more detailed consideration of the relation of the prism-dioptre to the metre-angle, but as Dr. Randall has acknowledged the great practical value of Mr. Prentice's work in that particular, we will defer its discussion for a future paper, in which we hope to show how the whole matter of convergence can be made simpler and more easily studied by means of the prism-dioptre than it is now by means of the clumsy metre-angle.

In the decentring of lenses the prism-dioptry system shows up to the greatest possible advantage, as has been demonstrated thoroughly by Mr. Prentice in his paper in the *Archives of Ophthalmology*. In regard to this Dr. Randall naïvely remarks: "I question if this be correct, although I fail to detect any fault in the argument."

When he does we trust he will let us know.

Dr. Randall's desire to make the centrad supercede the angle in measuring strabismus and in designating the direction of the axes of cylinders we cannot but regard as vain, knowing as we do the antipathy to change from even a bad system already established in the working of an art, although it be a scientific one, which prevails in the minds of the profession at large; when the reform comes, we fancy it will not be in the line of the centrad.

We quote, finally, this Parthian shot: "Dr. Burnett's assumption that the centrad is indivisible, and that only exact whole numbers can be employed, is gratuitous, to say the least."

Dr. Burnett never entertained any such opinion, and is not able to find any expression pointing to such an opinion in anything he has written on the subject.

ON THE RELATION OF ATMOSPHERIC ELECTRICITY, MAGNETIC STORMS, AND WEATHER ELEMENTS TO A CASE OF TRAUMATIC NEURALGIA.[1]

BY R. CATLIN,[2]
U. S. ARMY.

IN the relationship of atmospheric electricity to pain, it is shown that by a comparison of 120 daily curves taken on neuralgia periods with the mean of the same number for *ten consecutive days* of each month, pain seeks identity with both lower positive curves and with the negative, and with fluctuations of great amplitude.

For the influence of May storms on pain the maximum auroral period of 1882–83 was selected; of this period, seven of the greatest magnetic storms were chosen. Accompanying each was pain, and in the majority of cases pain of unusual intensity prevailed. The great storm of November, 1882, the greatest of which we have a record, shows the relationship to be unequivocal. In the other cases the magnetic storm was coincident with other causes, which may or may not have had something to do with pain, but in four cases no dry or wet cyclone was in any way connected with the trouble.

The comparison of the weather elements—such as pressure, temperature, force of wind, humidity, relative and absolute, days of rain, depth of rain, hours of sunshine, number of storms, and ozone—with pain—covers a period in no case of less than five years. Of these the increasing temperature curve, the hours of sunshine curve, and the absolute vapor curve, operate to diminish pain, while all the others are identified more or less with pain. In the monthly products for fourteen years it appears that the "depth of rain," ozone, and "number of days of rain," in this order, but almost equally, constituted the best standards for pain measurement. By generalizing on the extremes through all these years, by taking the twelve months of greatest pain and the twelve of least pain, the above conclusions are verified, and the law stated in general terms, as follows:

Maximum pain bears a direct proportion to storm frequency, and an inverse proportion to temperature and elastic force of vapor; and minimum pain bears an inverse proportion to storm frequency, and a direct to temperature and elastic force of vapor; while depth of rain accompanies the number of storms and maximum pain. Charts of *relative storm frequency* and *geographical pain* charts are thus ralated.

What are known as "*spells*" or "*types*" of weather, lasting from one to three weeks, probably due the relative position of the great anti-cyclone areas, have their influence on pain condition. This fact was recognized early in the history of this case in 1869. Increased amount and intensity of pain accompany these "spells," particularly at their beginnings. Covering a period of fifteen years the *relative ratios of the monthly products of pain* were as follows: February, 176; March, 175; January, 174; December, 168; November, 164; April, 161; May, 160; July, 159; June, 154; September, 153; and October, 153. The ratios were determined by dividing the total number of hours of neuralgia of each month by the total number of hours in the month for the whole period of fifteen years.

Perhaps the most difficult and complex part of the problem is in offering an explanation of the diurnal fluctuations of pain.

The record of hourly beginnings of pain covers a period of more than eighteen years; and the curve of the record of hourly beginnings of storms and the amount of rain of each covers a period of sixteen years.

The daily pain curve exhibits 3 pain maxima; the first at 11 A.M., the second at 2 P.M., and the third at 7 P.M. The part of the curve at 6, 7, and 8 A.M. has almost an inverse counterpart in 8, 9, and 10 P.M., but in the curve from 9 A.M. to 7 P.M., there is a very important minimum at 12 M. and 1 P.M., then a subordinate minimum at 3 P.M., very like that at 10 A.M., followed at 5 and 6 P.M. by a distinct minimum.

By placing on the pain curve the storm curves for the sixteen-year period, it becomes manifest that while the absolute values of the rain depths and number of storms on the pain curve do not show a full correspondence, it is, however, clear at once that there is a relative value between the two and the pain.

In all discussions of this subject to this time, only instrumental records, such as synoptic charts, thermograms, etc., have been brought into use, but it is clear that the physical effects produced by the temperature on the southeast side of a cyclone is very different from the same record-temperature on the west or the northwest side.

It is found that the eastern edge of the neuralgic crescent lies more than six hundred miles, or about twenty-three hours to the east of the centre of the "lows," but no two cyclones or rain conditions are exactly alike, and have different kinds of rain, and when we consider that there are two atmospheres—one of a dry, gaseous air, and another one distinct, of aqueous vapor, with the latter never thoroughly intermixed with the former, and never in a state of equilibrium—we partially realize how impossible it is in any given storm to get a complete record by instruments, or of those which are the best pain-

[1] Presented at the Boston Meeting of the National Academy of Science, November, 1890.

[2] See letter of Dr. Mitchell, p. 506.

producers, for without apparent instrumental cause they vary much in this respect.

No local hygrometric reading can give anything more than a vague approximation of the quantity of vapor or its mixture in a vertical column of air.

A typical neuralgic atmosphere, anticipating a cyclone, may be a dry air with a diminishing light, variable wind, and a pale, delicate, bluish whiteness in the atmosphere, more marked toward the horizon, and in the first stage more marked in the western horizon. The sickly whiteness may increase for from twenty to sixty hours, with an increasing discomfort when exposed to the peculiarly penetrating power of the sun's rays, but during all this typical condition there is nothing which has measured the changing aspect of the air, nor its changing condition of heat permeability, nor the absolute vapor, except at the surface, nor the distinctive character of the cyclone heat in the southeast quadrant, nor the direction of the upper and cross currents of wind, nor, above all, the modifications of the diurnal and "semi-diurnal" effect superimposed on the cyclone movement. It, therefore, seems important, in studying the hourly phases of pain, that meteorological charts should be supplemented by a descriptive narration to complete the record, and a closer study of the effect of diurnal change on weather.

OCULAR SIGNS AS AIDS TO DIAGNOSIS.[1]

By E. OLIVER BELT, M.D.,
OF WASHINGTON, D. C.

As all rational treatment of disease depends upon a correct diagnosis, any information that will aid in quickly forming correct conclusions regarding the nature of an affection will, I think, be welcome to the busy practitioner; and knowing that the eye and its appendages are frequently the seat of the local expression of general disease, and of special disease of other organs, or portions of the body, it is my purpose to give a brief summary of the most important of such ocular signs, and the deductions to be made from them. We will first consider affections of the conjunctiva, lids, cornea, iris, and lens, as seen by the unaided eye; and, secondly, those diseases revealed by the use of the ophthalmoscope, and the testing of the field of vision.

When a physician is called to the bedside of a patient, examination of the pulse and the tongue for indications regarding the circulation and digestion is of so much importance as to have become routine practice. To this routine should be added at least a cursory observation of the condition of the eye. Dr. Rosse, in a paper on "Cerebroscopy,"[2] meaning thereby the "method of diagnosing cerebro-spinal disease by studying the alterations of the eye," says: "This new science, though still incomplete, has done so much to advance the diagnosis of nervous diseases that the advocates of cerebroscopy place it in the first rank of the methods of exploration employed by physicians; and remarks, without exaggeration, that it is for diseases of the brain and spinal cord what auscultation and percussion are for diseases of the chest, for it is now quite possible by this method to see in the eye what is taking place in the brain."

It takes but a moment to notice whether the conjunctiva be clear or jaundiced, the palpebral portion congested or pallid, the lids puffy or discolored, the cornea clear or cloudy, the pupils dilated or contracted; whether there is perfect movement of all the muscles of the eyeball and lids, and whether vision is affected in any portion of the field.

Beginning with indications afforded by the conjunctiva and lids, we need no better evidence of hepatic derangement than the icterode conjunctiva, nor of anæmia, than the pallid mucous lining of the lids. Phlyctenular diseases of the conjunctiva and cornea are indications of lowered vitality and a strumous condition. Œdema of the lids, unaccompanied by inflammation of the eyeball, points to diseases of the heart or kidneys; this condition, however, may result from the use of certain drugs, as arsenic, it being frequently the first intimation of poisoning by that drug. It is also a useful guide in the therapeutic administration of arsenic. A succession of styes denotes a lowered condition of the general health, or derangement of the stomach or reproductive organs. Marginal blepharitis also indicates lowered health or an error of refraction. Protruding eyeballs, a rapid heart, and enlarged thyroid gland are familiar symptoms of Graves's disease.

The chief diagnostic sign given us by the cornea is interstitial keratitis. As a result of syphilis Nettleship says: "That diffuse, chronic keratitis, affecting both eyes of children and adolescents, is, when well characterized, almost invariably the result of hereditary syphilis, is proved by abundant evidence."

As a rule, the characteristic Hutchinson teeth are seen with this condition. In the old we sometimes notice painless ulceration of the cornea, which signifies a lesion of the fifth nerve. Arcus senilis is often an accompaniment of fatty heart, and an indication of fatty degeneration of other tissues of the body. The iris frequently gives us indications of unsuspected syphilis and premonition of gout and rheumatism for weeks before there are other manifestations of these diseases.[1] About 70 per cent. of the cases of iritis are due to syphilis. It usually affects both

[1] Read before the Medical Society of the District of Columbia, March 18, 1891.

[2] Reference Handbook of the Medical Sciences.

[1] THE MEDICAL NEWS, December 27, 1890.

eyes, which is an important fact to remember, as unilateral iritis is generally due to rheumatism, which causes about 15 per cent. of all cases. A gumma of the iris is a positive indication of syphilis.

The condition of the pupils frequently gives us the first intimation of brain or spinal disease, and in cases of poisoning it assists in determining the nature of the poison, and the antidote.

Nettleship[1] says: "Reflex iridoplegia (the Argyll-Robertson pupil) is one of the most valuable of the early signs of locomotor ataxy." Inequality of the pupils seems to be very frequently a precursor of insanity. Aside from dilatation caused by paralysis of the third pair of nerves and the local influence of mydriatics, according to Meyer and other authorities, the pupils are found dilated in hysteria, in hypochondria, in the later stages of meningitis, in hydrocephalus, etc. Sudden dilatation of the pupils during the administration of chloroform is a very important danger signal.

Contraction of the pupils, according to Swanzy,[2] is found in the early stages at least of all inflammatory affections of the brain and its meninges, in tobacco amblyopia, at the beginning of an hysterical or of an epileptic attack, in the early stages of intra-cranial tumors situated at the origin of the third nerve, or in its course. In cerebral apoplexy the pupil is at first contracted, according to Berthold, who points out that this contraction is a diagnostic sign between apoplexy and embolism, in which latter the pupil is unaltered. In lesions above the dorsal vertebræ myosis occurs. Some authorities regard myosis as one of the earliest signs of tabes, while others do not. In acute mania the pupil is usually much dilated, and when this mydriasis is changed for myosis, approaching general paralysis may be prognosticated.

The pupils are dilated in poisoning by strychnia, ergot, belladonna, stramonium, hyoscyamus, duboisia, cocaine, and aconite; and are contracted by lethal doses of opium, jaborandi, physostigma, tobacco, etc. Loss of accommodation, with or without dilatation of the pupils, frequently follows diptheria, and may be the only positive evidence that the sore throat was diptheritic. Changes in the lens are sometimes of diagnostic value, as rapidly forming cataracts in persons of middle age are indications of diabetes mellitus. In one patient under my observation, suffering with that affection, cataracts formed and matured in both eyes in about six weeks. Muscae volitantes generally indicate disordered digestion, but this affection is not to be confounded with floating bodies due to changes in the lens, vitreous, and choroid, which are generally of a serious nature.

[1] Diseases of the Eye.
[2] Ibid., pages 274-275.

Among the indications revealed by the opthalmoscope we may mention symmetrical disseminated choroiditis with opacities in the vitreous as being almost pathognomonic of syphilis. In this affection the retina is often involved with the choroid. But the retina gives us useful indications in a number of other affections. Notably, in Bright's disease impaired vision is often the only marked symptom. According to Wells,[1] disease of the kidney may be unknown and unsuspected until the ophthalmoscope reveals the presence of the characteristic albuminuric retinitis. During the latter months of pregnancy amblyopia may be the first symptom intimating the probability of albuminuria. Blindness following delivery is more often from loss of blood.

Idiopathic retinal hæmorrhages are of decided significance, especially in the old, where they are often precursors of cerebral apoplexy. In illustration of this point I recall a case which came under my observation a few years ago, at the Presbyterian Eye and Ear Hospital, Baltimore. A prominent physician of the South, about eighty years of age, but in apparently excellent health, had been awaiting patiently the maturation of a cataract; suddenly vision in one eye was reduced to perception of light, and concluding that the cataract was mature, he came on to have it removed by Professor Chisholm. Instead of finding an opaque lens, however, we found extensive hæmorrhages into the vitreous. In less than a week after returning to his home he died suddenly in his office of apoplexy.

Retinal hæmorrhages are not unfrequently seen in organic disease of the heart, and sometimes they result from menstrual suppression. In the absence of glaucoma, when pulsation of the retinal arteries is observed, we might suspect insufficiency of the aortic valves, aneurism of the aorta, Graves's disease, or chlorosis. Amblyopia in certain cases may lead us to suspect tobacco-poisoning, especially if accompanied by central scotoma for red. Optic-nerve atrophy is often the first intimation of locomotor ataxy.

Optic neuritis, loss of sight in portions of the field, and paralysis of certain ocular muscles, frequently give us such aids as to enable us to diagnosticate with comparative certainty not only the presence, but often the location of cerebral lesions. According to Gowers,[2] neuritis is present at some period in at least four-fifths of the cases of tumor of the brain. He says the value of optic neuritis as an indication of the existence of an intra-cranial tumor is very great, and that it may be the only unequivocal sign of the intra-cranial disease. Nettleship says: "Although pointing very strongly to organic disease within the skull, neuritis is not of itself

[1] Diseases of the Eye, 1873, page 373.
[2] Medical Ophthalmoscopy, page 164, 1891.

either a localizing or differentiating symptom." In conjunction, however, with other symptoms that are frequently present it is of much value in localization.

Neuritis limited only to one eye, generally indicates disease of the orbit. Loss of half the field of vision (hemiopia) is one of the most important aids in the localization of cerebral lesions. When binocular it indicates disease at or behind the optic chiasma. In the majority of cases the hemiopia is homonymous, that is, the right or left lateral half of each field is lost. Loss of the right half of each field points to disease of the left optic tract, or of some part of the left occipital lobe, or in the fibres connecting these parts. Temporal hemiopia points to disease at the anterior part of the chiasma. When lateral hemiopia co-exists with hemiplegia the loss of sight is on the paralyzed side. Swanzy[1] says: "We may conclude that the hemiopia depends upon occipital lesion, if it be unaccompanied by hemiplegia, motor aphasia, or paralysis of cerebral nerves;" also, that contraction of the pupil in a case of hemiopia, when the light is thrown on the blind half of the retina, indicates that the lesion causing blindness is back of the corpora quadrigemina. The absence of this reaction indicates that this lesion involves the corpora quadrigemina or the optic tract. Sometimes there is incomplete hemiopia, that is, only one quadrant of the field of vision is affected. Hun[2] reports a case of this kind, in which the left lower quadrant in each field was blind, and where the autopsy showed a lesion strictly limited to the lower half of the right cuneus. Remember the fact that loss of a certain half of the *field* means loss of function of the opposite half of the *retina*.

Paralysis of the ocular muscles also aids in locating cerebral disease. Complete paralysis of the third nerve, without any other paralysis, is almost always due to lesion at the base of the brain, on the same side. Hemiplegia of one side, coming on simultaneously with paralysis of the third nerve of the opposite side, is a common sign of disease of the crus cerebri. When paralysis[3] of the third nerve occurs with hemiplegia of the opposite side of the body and other cerebral symptoms, it is usually due to pressure on the nerve where it runs beneath the cerebral peduncle. According to Nothnagel, this localization is still more certain when paralysis of the facial and hypoglossal nerves exist on the same side as the hemiplegia.

Paralysis of the sixth nerve, according to Swanzy, simultaneous in its onset with hemiplegia of the opposite side of the body, indicates a lesion of the pons, usually a hæmorrhage on the side corresponding to the paralyzed nerve. By itself paralysis of the abducens is of little value in the localization of cerebral disease from the fact that it is so often of peripheral origin.

There are many other ocular signs which aid in diagnosis, but I think this summary embraces most of those which have been verified in the clinic and by autopsies.

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[1] Diseases of the Eye, page 402, 1890.
[2] American Journal of the Medical Sciences, January, 1887.
[3] Pepper: System of Medicine, vol. iv. page 780.

THE GREAT VALUE OF OPENING THE EUSTACHIAN TUBE IN DISEASES OF THE HEAD AND EARS.

BY LAURENCE TURNBULL, M.D., PH.G.,
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THIS case, with the one which follows, was sent by a friend, and must be my apology for this brief paper. The writer was called in consultation in Germantown, in the vicinity of Philadelphla, to see a case of deafness with other distressing symptoms. The following history is given by the attending surgeon:

G. A., aged thirty years, of full habit and sanguine temperament, fond of field sports, horses, etc., was driving with his coachman, and on making a sudden turn near Bala station the carriage was overturned, the gentleman falling on his side and striking the left ear and side of the head on a hard body, producing symptoms of concussion of the brain and profound deafness of the same ear, with distressing tinnitus aurium. He was treated most judiciously by his attending surgeon for ten days, but with no relief from the noise or deafness.

When called in I found the patient in bed with his head wrapped up and a poultice over his ears and very much distressed about his hearing. On examination, there was found a swelling situated back of the ear. The auditory canal was inflamed, and the membrana tympani opaque and dark from some material in it, and bulging. The surgeon had hesitated to puncture until I had seen the case. I suggested the use of the Eustachian catheter and inflation through it as perhaps a safer method of procedure. This was done both for the noise and also to give the patient a good, refreshing sleep. Pus, mucus, and blood passed in this way, first by the catheter, and after the free opening into the pharynx, was expectorated as if from an abscess; after some weeks of treatment all evidence of any foreign body was removed, the hearing improved, but the noises did not altogether disappear. The patient was able to take a trip to the West, still keeping up the use of remedies for the noise, which gradually disappeared, and he is now entirely cured.

The following case of Bayer, of Brussels, is analogous to the one above reported:

Male, aged thirty-three years, highly nervous temperament, and a great traveller; was out riding, and after being violently thrown from his seat, again

mounted. Upon dismounting he had to be carried to bed, and became unconscious; now and then pointed with his hand to the left ear. Had subsultus and all the symptoms of pressure. An examination of the auditory meatus showed everything to be in order and was negative. Catheterization suddenly restored the patient to consciousness, and he told this story: That he felt something snap or give way in the left ear when he was so violently jolted. His recovery was slow and he was very nervous; his left arm trembled frequently, and the intellectual functions were impaired for some time. Unconsciousness lasted nearly thirty hours in all. Nervous shock seemed to be the cause of the trouble, which was concussion of the brain, or it might have been auditory, especially as catheterization induced sudden and positive relief.

ORIGINAL LECTURES.

RANULA—SUBCUTANEOUS SECTION OF THE FEMUR FOR THE CORRECTION OF DEFORMITY FOLLOWING COXALGIA—EXCISION OF RIBS FOR EMPYEMA—NECROSIS OF THE HUMERUS—EXCISION OF THE KNEE.

A Clinical Lecture
delivered at the Children's Hospital of Philadelphia.

BY H. R. WHARTON, M.D.,
OF PHILADELPHIA.

[Reported by DR. WILLIAM H. MORRISON.]

THE first case which I have the pleasure of showing you is one of

RANULA.

By ranula we mean a tumor in the floor of the mouth in front of and under the tongue, with thin walls covered with mucous membrane and filled with fluid contents of a syrupy consistency. Its origin is supposed to be in a dilatation of the submaxillary or sublingual duct. This unquestionably constitutes one variety of ranula, known as acute ranula. Recent investigations have, however, shown that in the majority of cases the tumor is really a retention cyst of one of the mucous follicles in the floor of the mouth. The affection occurs both in adults and in children, but is more common in the latter. The floor of the mouth is often much raised by the tumor, and even the tongue may be lifted up. When large, it may cause a depression of the submental tissues, and the floor of the mouth may be raised to a level with the lower incisors. The affection is not dangerous, except where there is marked dilatation of the ducts and the tumor increases so much in size that it pushes the tongue upward and backward, interfering with the entrance of air into the lungs.

The treatment may be conducted in several ways. Simple puncture of the cyst does not usually result in a radical cure. Another method of treatment is by the introduction of a seton into the sack of the ranula. The fluid escapes and the seton sets up inflammatory action, and the ranula may be cured in this way; but the time required is longer than by the method that I shall speak of, and which I consider the best; that is, excision of a portion of the wall of the ranula. This is done by seizing the mucous membrane with forceps and cutting out a portion of the wall with scissors. The amount removed should be considerable, and if the ranula extend to the opposite side of the mouth, it is well to take a section out on the other side. The fluid contents are then squeezed out, and you may touch the inner surface of the sac with a solution of nitrate of silver or tincture of iodine, or a piece of the solid stick of nitrate of silver may be passed into the cavity and the walls lightly cauterized. Cure of the condition generally follows this operation. The patient suffers little pain, and the only after-treatment necessary is to keep the mouth perfectly clean. This may be done by a mouth-wash containing chlorate of potassium, glycerin and myrrh, or one of boric acid, carbolic acid, glycerin, and water. We cannot use the ordinary antiseptic solutions, such as carbolic acid and bichloride of mercury solutions, when operating on the mouth. We wash the parts with pure water, and depend upon that. It is impossible to keep the mouth aseptic after operation. In operating on these cases it is more satisfactory to use the mouth-gag, so that the jaws are held apart and sufficient room is obtained. There will probably be considerable swelling for a few days, but this will diminish as the parts heal.

SUBCUTANEOUS SECTION OF THE FEMUR FOR THE CORRECTION OF DEFORMITY FOLLOWING COXALGIA.

The next case is one of hip disease of some standing. The child is six or seven years of age, and has suffered for several years from coxalgia. The disease ran a rather quiet course. The case was probably not treated for some time, but an accidental complication arising, the boy was brought to us, and treated in the ordinary way. The limb was extended by a weight, and lateral support by means of sand-bags was employed. The child has developed no inflammatory complication, and the reason I bring him before you is to do an operation to remedy the deformity which results from the cure of the disease. A great many of these cases of hip-joint disease, in which recovery takes place, are left with the limb slightly flexed on the pelvis and with a slight amount of abduction. This is the characteristic deformity following cured hip-joint disease, even where special apparatus is employed to prevent it. The deformity causes a certain amount of shortening of the limb, and interferes, to a certain extent, with progression. There is, in this case, limited motion at the hip joint.

To remedy this deformity, we have two operations. One is excision of the head and neck of the femur; the other, subcutaneous osteotomy of the neck of the femur, or of the shaft of the bone just below the lesser trochanter. The latter operation is the one which I consider the better in these cases. It is attended with little risk, and results in a satisfactory cure of the deformity. The operation was devised by Mr. Adams, of London. It consists in making a section of the femur with a small saw passed through a wound on the outer side of the thigh. The operation suggested by Adams was section of the neck of the thigh-bone. This is a good operation in certain cases of deformity, and especially in those cases which seem to be of rheumatic origin, where there is little change in the shape of the head and neck of the bone; but in coxalgia, where the disease has destroyed

the head of the bone and involves the acetabulum, the operation is not so good as the modification devised by Gant, which consists in a subcutaneous section of the femur below the lesser trochanter. As I have said, the operation is attended with little risk. I know of only one case in this city which did badly after this operation; but that one eventually recovered with a cure of the deformity. This was early in the history of the operation, before it was properly understood. A small puncture is made with a strong tenotomy knife on the outer side of the thigh. Then the tissues are divided with a blunt-pointed knife around the bone and this is followed by the introduction of a special saw, known as Adams's saw, and the bone is divided. The small wound is closed with a compress, and generally heals without trouble.

The deformity in these cases is due, in a measure, to the action of the psoas and iliacus muscles, which are inserted into the lesser trochanter. When the bone is divided below the trochanter, the limb can be brought into its normal position, thus leaving a wedge-shaped gap, which becomes filled with new bone in a short time. If, however, the neck of the bone is divided, while you may correct the deformity, the action of the muscles will tend to reproduce it. That is the objection to Adams's operation in this variety of case. In some cases there is a slight amount of hip-joint motion; in others, there is complete ankylosis. In either event, the operation is a proper one.

The first thing to do is to locate the position of the greater trochanter. There is sometimes a little difficulty in doing this, for its position is, of course, changed by disease of the head of the bone. Having located the trochanter, I make a section of the soft tissues a little below it. The knife is passed down to the bone and the saw introduced by its side. The saw is then passed over the upper portion of the bone and brought to a right angle with it. The section of the bone is then made with short cuts of the saw. Having divided the bone I bring the limb into its proper position. I have really produced a compound fracture of the femur, which, before the days of antiseptic surgery, would have been an unjustifiable procedure simply for the relief of this deformity. Over the opening made I apply a compress of bichloride gauze dusted with iodoform, and held in position by a few adhesive straps. The treatment now will be that of fracture of the femur, the patient being kept in bed, and extension by a weight, with lateral support by sand-bags, employed to keep the limb in position. The child will be kept absolutely flat on his back for four or five weeks. By that time union is generally quite firm, and the small wound, through which the section was made, has generally satisfactorily healed long before. There will probably be some shortening of the limb, which can be overcome by the use of a high shoe. In some of these cases, there is a tendency for the lower fragment to ride up. In such cases we apply a sand-bag over the anterior surface of the femur for a few days after the section.

EXCISION OF RIBS FOR EMPYEMA.

The next case is one of empyema of some duration. I first saw the patient last summer, and made openings between the ribs, introducing large drainage-tubes. The result was satisfactory for some time. The general condition improved, and he was sent to the convalescent branch of the hospital in the country, and in the fall the discharge from the tube had almost ceased, and his general condition had much improved. The drainage-tubes were gradually shortened and withdrawn. There was left only a small sinus, which I thought might be connected with a localized caries of the ribs. The boy then left the hospital, and, some weeks afterward, in playing, received an injury over the seat of the original trouble. This was followed by fever and return of the symptoms connected with the chest, and the patient was again brought to the hospital. We dilated the drainage wound, introduced a tube and found a large collection of purulent matter. The patient was then kept under observation, and the chest drained and washed out, every second or third day, with antiseptic solutions. We also washed out the cavity with a solution of peroxide of hydrogen. The case has now come to a point where some decided operative interference seems advisable. I propose to-day to explore the wounds, expose the cavity, and if I find any considerable space between the costal and pulmonary pleura I will excise a portion of one, two, or three ribs, as may be deemed necessary. This case was also complicated by an attack of scarlet fever a few months ago. It is unusual in children that excision of the ribs is necessary for the cure of a cavity resulting from empyema. I have generally found that in children free drainage with large drainage-tubes, with thorough washing out, will bring about a satisfactory result. The elasticity of the chest-walls will generally allow the parts to sink in, and bring the two surfaces in contact, so that healing will take place if drainage is maintained. It is only after a faithful trial of less heroic measures that I have deemed it advisable to excise a portion of the ribs.

In excising the ribs, we first turn up a flap of the chest-wall, including the skin, superficial fascia, and muscular tissue, exposing the ribs. Then we explore the cavity and see in which direction it extends, and then remove a portion of one rib, or of several ribs, as the case may be. We can divide the rib with the Hey's saw or with forceps. I prefer to weaken it with the saw and then complete the section with bone-forceps. The only hæmorrhage that is to be looked for is from the intercostal arteries. This we may have to control with the cautery. I removed about an inch and a half of the rib without injuring the costal pleura. I find that the cavity extends upward over the diaphragm, and I shall also take out a like amount of the rib above. Hæmorrhage is then controlled by the application of ligatures, and the cavity thoroughly washed out with a solution of bichloride of mercury, 1 to 4000. A large drainage-tube is next inserted, and an antiseptic dressing applied. The tube will be allowed to remain three or four days, and then the cavity will be again washed out. The dressing consists first of protective, over which a wet bichloride-gauze dressing is applied; over this is dry gauze dressing covered with bichloride cotton, and a bandage is applied to secure the dressings, but not so tightly as to interfere with the respiratory movements.

NECROSIS OF THE HUMERUS.

The next case is a boy, six or seven years old, who presents, at the upper part of the left arm, an opening

through which protrudes a portion of necrosed bone. The history of the case is that four or five years ago there was an inflammatory affection of the bone, which terminated in the formation of an abscess, and since that time there has been a constant discharge from the opening. Recently there has appeared in the sinus a mass of dead bone. This is often the history of these cases of inflammatory affections of the bone which are not subjected to prompt surgical treatment. The disease originally starts as an inflammatory affection of the periosteum or of the bone; abscess is apt to follow, and then exfoliation of the bone takes place gradually. In long-standing cases there is generally a firm, well-developed involucrum surrounding the dead bone, which has its origin in the periosteum. The whole shaft of the bone may be dead and surrounded by this involucrum. The more chronic the case the more extensive and hard is this bone-sheath. These long-standing cases, in which the dead is separated from the living bone, are favorable cases for operation. The necrotic process in the bone is limited, and the dead bone is ready to be thrown off, and in many cases the only thing that prevents spontaneous extrusion is the large size of the sequestrum, and the fact that the sheath of new bone surrounds it.

I shall first apply Esmarch's bandage, which renders the operation bloodless. The dead bone is then exposed and the involucrum chiselled away, leaving a cavity with sloping edges, which can be filled with granulations. The cavity should be kept packed, so that it will heal by granulation from the bottom. When the wound is thoroughly healed a depressed cicatrix is left. This is an evidence that the necrotic process is arrested, and that the wound has healed in a satisfactory manner. I have not had an opportunity to examine this case before, and it may be that the cavity is very small, and all that will be necessary will be to remove the sequestrum and pack with bichloride or carbolated gauze. In these operations on the arm, care must be taken to avoid injuring the musculo-spiral nerve, which crosses the arm about its middle. In a recent case, where I removed the whole shaft of the bone from the upper to the lower epiphysis, I avoided all risk of injury to this nerve by dividing the tissues above and below the region of the nerve, and then raising the tissues under the nerve so as to cut away the bone and make the cavity continuous, allowed the soft parts containing the muscle sheath to form a bridge over the true cavity. Having applied the Esmarch's bandage, I cut down on the sequestrum and separate the periosteum from the bone. Then with a chisel I enlarge the opening in the new bone and remove the sequestrum. The cavity extends downward some distance, and I enlarge the opening so as to have a cavity with sloping edges, which can be readily packed. All overhanging portions of bone are removed, and the cavity scraped with the osteotrite. The wound is then washed and packed with bichloride gauze. A piece of protective is first put in the wound. This prevents adhesion of the packing to the surface of the bone, and facilitates the redressing. The dressing is completed before removing the Esmarch's bandage. This dressing will be allowed to remain undisturbed for a week, and the case will then be redressed in the same manner, and we will expect to find the wound at that time covered with healthy granulations.

EXCISION OF THE KNEE.

I now bring before you a girl, four or five years of age, who is suffering with a chronic inflammatory affection of the knee-joint. The appearance presented is that of ordinary gelatinous or tubercular arthritis of the knee. The disease has existed for some time. The parts are much swollen, but as yet there are no discharging sinuses. The limb is useless, as far as its functions are concerned, and the time has arrived when some operative treatment should be instituted. In these cases of arthritis of the knee-joint, we do not recommend operation in the early stages. We are generally satisfied to employ some form of dressing or splint which will produce fixation, and treat the case locally by the use of resolvent applications and, at the same time, direct treatment to the constitutional condition of the patient. Many cases recover with considerable impairment of joint motion, and yet with useful limbs as regards locomotion. When the disease advances and there are marked degenerative changes, when the ligaments are involved and displacement of the articular surfaces occurs, with erosion and destruction of the cartilages or of the articular surfaces of the bone, then the case is one in which operative treatment is indicated. In these cases we have two operations. One, which has been recently adopted, is that of arthrectomy, which consists in exposing the joint, trimming out the diseased tissue, closing the wound, and suturing the lateral ligaments and the divided ligament of the patella. The limb is then placed on a fixation splint and an endeavor made to get union with a certain amount of motion. In some cases I have seen excellent results from this operation. In cases, however, where there is extensive destruction of the joint with probable necrosis of the articular surfaces, this operation is not apt to give good results. It is better adapted to cases before the bone is extensively involved. In instances like the present, I think that excision of the knee-joint is safer and a more satisfactory procedure as regards permanent cure. In this operation a transverse incision is made across the knee-joint, the ligamentum patellæ divided, and the joint opened. The condition of the bony surface is then examined, and as much bone removed as will take away the diseased tissue, and place the limb in its proper position. In this operation we do not aim to get a movable joint; we hope to get firm bony, or fibrous, union. The limb is more useful with bony union, as there is less tendency to subsequent deformity. After the operation the limb is kept on a bracketed wire splint, which permits removal of the dressing and redressing without disturbance of the limb. The incision which I prefer is a transverse incision passing below the patella; it starts at the inner condyle of the femur and extends over almost to the external condyle. The incision is carried down to the deep fascia, and then the flap dissected up until we have exposed the whole of the patella. We then divide the lateral ligaments and expose the articular surfaces of the tibia and femur thoroughly. Any hæmorrhage that occurs will be arrested by hæmostats temporarily, and the vessels will be tied after section of the bone is completed. As I open the joint, pus escapes in large quantities. The inflammation has also extended into the bursa above the knee-joint. The articular surface of the femur

is carious, but the tibia does not seem to be diseased to any marked extent. I remove a section of bone from the femur and also from the tibia, taking care that the sections are made so that when the bones come together, the limb will be in its proper position. I do not use the Esmarch bandage in this operation, because the amount of blood lost is not great, and where this bandage is employed in excisions the consecutive hæmorrhage may be quite troublesome. Having placed the bones in proper position, I curette the bursa above the knee-joint thoroughly, and drain it with a large tube. In some cases we may suture the bone, in other cases use ivory pegs or steel nails to fasten the bone together. In the majority of cases the splint affords all the fixation necessary. I also trim away the degenerated tissue around the knee-joint. The wound is thoroughly irrigated with the bichloride solution, a drainage-tube passed into the bursa and one across the front of the knee, and the edges of the wound brought together with sutures of silkworm-gut. The usual antiseptic dressing is then applied, and the limb secured to the bracketed wire-splint. [This case was dressed for the first time upon the tenth day after the operation, at which time the temperature was normal; the wound was solidly healed except at the points where the drainage-tubes protruded; these were removed with the exception of the one extending into the bursa above the patella, which was allowed to remain, and the case was redressed in the same manner as at the primary dressing.]

EXTROVERSION OF THE BLADDER—SYPHILITIC ORCHITIS—SYPHILITIC PERIOSTITIS.

A Clinical Lecture,
delivered at the New York Post-Graduate Medical School and Hospital.

BY HENRY DWIGHT CHAPIN, M.D.,
PROFESSOR OF DISEASES OF CHILDREN.

GENTLEMEN: The infant I present to you is one year old; it is fairly nourished, although showing slight evidences of rickets. At the lower part of the abdomen, just above the pubes, you notice a reddened mass, just below which is seen the penis, which is in a condition of complete epispadias. An examination of this case shows it to be one of those comparatively rare instances of extrophy or extroversion of the bladder. The reddened fungous mass consists of the posterior wall of the bladder, which is prolapsed through an opening in the abdominal wall. There is an entire absence of the anterior wall of the bladder. On either side, and at the lower part of this mass, careful inspection will show the orifices of the ureters. Passing a probe in, as I do now, we can follow these canals for quite a distance on either side. These cases are often accompanied by inguinal hernia, and this child has a double hernia of that description. The testicle is absent on one side; in not a few instances we have a non-descent of both testicles. In some of these cases, the deficiency in the abdominal wall may be several inches in extent, although usually not so extensive. There is invariably a condition of inflammation of the mucous membrane of the protruding bladder on account of friction from the clothing and from decomposition of the urine. There is also to be noted a distinct umbilical hernia. In some of these cases, non-union of the pubic bone may likewise be noted.

Examination of the urine shows the kidneys to be healthy. The urine dribbles away constantly, and when the bladder is pressed upon, a few drops nearly always escape. If these cases are not kept extremely clean, the skin will be excoriated from the constant dripping and decomposition of the urine.

This unfortunate deformity is usually met with in the male, but it may be occasionally seen in the female, when the nature of the deformity is of the same kind. The measures taken to relieve these cases are not accompanied by much success. The prognosis is not very hopeful, as a complete cure is out of the question. Every means must be taken to lessen the irritation to which the exposed parts are subjected. A pad of antiseptic cotton or gauze can be placed over the bladder, and gentle pressure employed. The surrounding parts can be dusted with bismuth, oxide of zinc, or lycopodium. If the children live long enough to walk about, a rubber urinal, having a cup fitting over the opening in the abdominal wall, can be employed, and the urine collected in a receptacle attached to this cup.

Two varieties of operation have been proposed and employed in these cases. The first consists in making the rectum serve as a receptacle for the urine. To accomplish this, the ureters are brought into connection with the rectum by threads. The results, however, of this procedure have not been good, as kidney disease is very apt to ensue, and the urine produces considerable disturbance in the rectum. A more radical operation consists in closure of the abdominal opening by means of a plastic operation, allowing the urine to pass through a small opening. Where the abdominal opening is small, the edges of the skin may be freshened and covered with flaps which are derived from the adjoining tissues. Various surgeons have devised different plastic proceedings; Pancoast derived his flaps from the inguinal region, and united them in the median line with their epithelial faces inward. Other surgeons have worked with flaps of integument derived from the scrotum, perineum, and groin. The operation itself is not unattended with danger, as it has been estimated that about 20 per cent. of the cases have died from peritonitis, sepsis, or exhaustion from loss of blood. As in this case the extroversion is very extensive, and the general condition of the child not very good, I think it best to defer operative measures, particularly as the function of urination is well performed, and the child is fairly comfortable. If these cases live to adult life the condition is a pitiable one; they constantly carry about with them the offensive smell derived from decomposing urine, which is dribbling continuously from the ureters. It is likewise impossible for them to perform the sexual act, although the desire is present.

The next case is an infant of two years. His mother has brought him for "a hard lump" in the scrotum. There are several conditions to be noted in connection with swellings of the lower groin and scrotum at this age. We may have hydrocele of the tunica vaginalis, hydrocele of the cord, an undescended testicle, or an inguinal hernia. An examination of this case shows that we can easily eliminate most of these conditions, as it resolves itself into some change that has taken place

in the testicle. It is an extremely hard, somewhat diffused mass that evidently involves the whole testicle. It may be either tubercular, syphilitic, or sarcomatous. The mother gives a history of having had two miscarriages just previous to the birth of this infant. There is present in one of the eyes a plain case of interstitial keratitis. Besides this the mother gives no history of previous syphilitic manifestations in this infant. Syphilitic infiltration of the testicle is of slow growth. The mother has noticed that this condition has been present for several months, and thinks it is gradually increasing in size. In cases of tubercular disease of the testicle, hard, irregular nodules may generally be felt, which may simply undergo a slow, caseous degeneration, or finally suppurate. There is apt to be pain in the testicle. The abscesses, which are commonly formed by suppuration in the nodules, may be multiple, originating from several foci. Handling the testicle in the case before us produces absolutely no pain. Sarcomata may be occasionally seen during infancy, both of the simple and multiple variety. The tumor may reach a large size, and at the beginning be accompanied by great pain. We shall put this case at once upon the iodide of potassium, and can give a very good prognosis.

The boy I now present to you is ten years of age. The mother has had eleven children: the first six were born at term and have been healthy. Then she had two miscarriages, the first at six and a half months, and the second at seven and a half months. The next infant was born healthy and remained so, and the patient before us was the next child. He has always been delicate, and during infancy was said to have suffered from marasmus. He grew stronger when about three years old, and has been thoroughly well since with the exception of colds. Three weeks ago the mother noticed a swelling over both tibiæ. The skin over these bones was slightly reddened, and somewhat painful upon deep pressure. He did not complain particularly of the pain, but limped about, attending to his ordinary duties. The condition has been growing steadily worse until last week, when he was first brought to the clinic. Since then a decided improvement has been noted, for during this time I have been employing fairly large doses of iodide of potash. This may be considered one of the late manifestations of hereditary syphilis. An ordinary idopathic periostitis would have been accompanied by much more active and urgent symptoms. There would have been rigors, followed by vomiting, headache, and possibly delirium, with a high temperature. Such a periostitis is apt to be accompanied by an osteo-myelitis, and the prognosis is always serious. The treatment is principally surgical, as free antiseptic incisions must be early made in order to relieve the pressure and prevent sepsis. Syphilitic periostitis is controlled, on the contrary, by simple medical treatment, the iodide of potash usually relieving it in several weeks. It involves particularly the tibia and humerus. The specific periostitis is likewise usually multiple and very apt to be symmetrical. If one tibia is attacked, the corresponding bone on the other side will probably also be involved, and the same is true of the ulna and radius. There may be a deposit, accompanying the periostitis, which will change considerably the shape of the diseased bone. Hereditary syphilis is often accompanied by proliferation of new bone, which is, however, of inferior quality. The pain accompanying inflammatory changes is worse at night, this phenomenon being the same in hereditary as in acquired syphilis. In some cases of hereditary syphilis, a low caseous inflammation takes place at the junction of the epiphysis with the diaphysis. This may even go on to suppuration, and is known as osteo-chondritis. Among the rarer forms of bony change may be mentioned dactylitis, which may involve the bones of either hands or feet. This, however, is usually seen in very young children. It begins generally in the periosteum or in the fibrous tissue about the joint. Resolution nearly always takes place.

MEDICAL PROGRESS.

Treatment of Simple Chancre.—In the *Revue Générale de Clinique et de Thérapeutique*, CASTEL, after pointing out that the danger of this lesion resides in great part in its virulence and in the facility with which re-inoculation is possible, proceeds to consider the best applications for its relief. After reminding us of the fact that Ricord habitually employed the charcoal and sulphuric acid treatment for this purpose, and obtained from its use very extraordinary results, he draws attention to the more recent methods of treating the disease, also calling attention to the use of Canquoin's paste. Diday and Fournier recommend the employment of a solution of nitrate of silver, and the latter has found that the application of a 3 per cent. solution produces very excellent results. The lesions should be dressed with a tampon of absorbent cotton dipped in this solution and renewed three times a day. With this treatment simple chancre should be cured in from three to six weeks, and it may be advisable to apply not only antiseptic washes, but oxygen water and solutions of chloral or Labarraque's solution. According to Rollet and Mauriac the following applications are also very useful:

℞.—Water	6	drachms.
Lemon-juice	1½	"
Laudanum	45	minims.
Goulard's extract	1	drachm.

Or,

℞.—Water	1	ounce.
Citric acid	45	grains.
Hydrochloric acid	45	"
Perchloride of iron	45	"

Treatment of Paralysis of the Bladder.—HOCHE divides the treatment of paralysis of the bladder into that which is palliative, and consists in the regular evacuation of this viscus by means of a catheter employed with every antiseptic precaution, and also the curative. The bladder should never be allowed to become distended. For the curative treatment, he uses injections of strychnia and subcutaneous injections of ergot, with cold douches and compresses to be applied to the perineum. Finally, electricity may be resorted to, and under these circumstances the application of the current should not last over ten minutes. The positive pole should be placed over the vertebral column, and the negative pole over the hypogastrium. If the positive pole is introduced into the bladder the negative pole should be put over

the pubes, and the current should not be applied over three or four minutes.—*L' Union Médicale.*

The Dose of the Bromides.—SIMON recommends that for infants under the age of one year the appropriate maximum and daily dose of each of the bromides should be three grains, which should be given in two doses and should be well diluted. Larger amounts may, of course, be given in the event of severe convulsions. For a child of two years the daily dose may be six grains, divided into two doses and given in a vehicle which will be pleasant to the taste, and which should be present in large quantity to prevent irritation of the stomach. The dose should also be given immediately after a meal. For a child of three years, fifteen to thirty grains may be given, divided into three or four doses, during the day. The drug should be stopped every other week. After the age of three years Simon thinks that large doses may be employed and believes that from this age on great tolerance is reached, and that gastro-intestinal troubles are diminished.—*Revue Générale de Clinique et de Thérapeutique.*

The Treatment of Purulent Ophthalmia.—The *Revue Générale de Clinique et de Thérapeutique* gives the following treatment for this troublesome condition: During the initial stage, when the secretion is transparent, antiseptic irrigations of phosphoric acid or the application of compresses soaked in a very cold solution of corrosive sublimate are of value. When the disease is well developed the treatment is both cauterant and antiseptic. The cauterizations are to be made, if possible, twice a day by dropping into the eye a solution of nitrate of silver in the proportion of 1 : 25, or better still, by the direct application of the nitrate of silver stick. After this the eye should be immediately washed out with a solution of common salt to prevent an excessive action of the nitrate of silver.

As an antiseptic irrigation phosphoric acid, naphthol, and corrosive sublimate may be employed, and in the cavities it may be well to employ compresses soaked with solutions of these drugs. For the relief of chemosis scarifications may be employed, and for corneal ulcers cauterizations with nitrate of silver followed by the use of iodoform ointment are valuable. During the period of decline in the disease it is well to continue the applications of the solution of nitrate of silver in the strength of one per cent., as well as the irrigations and antiseptic compresses. If the suppuration continues and there is much pain, relief may be obtained by the application of the following prescription:

℞.—Extract of opium	1½ grains.
Boiling water	1 pint.

Sometimes the following collyrium is useful:

℞.—Nitrate of silver	1 grain.
Deodorized laudanum	10 drops.
Distilled water	3 drachms.

Treatment of Anasarca.—According to *L' Union Médicale*, PECHOLEIN recommends the following application for the treatment of anasarca:

℞.—Veratrine	15 grains.
Iodide of potassium	30 "
Lard	1 ounce.

This is to be made into an ointment and applied with friction.

Liniment for Gout.—The *Lyon Médical* states that the following liniment is useful in the treatment of gout:

℞.—Collodion, Sulphuric acid, Salicylic acid, of each	1 drachm.
Hydrochlorate of morphine	15 grains.

This is to be painted over the part affected every few hours.

Application of Ichthyol.—According to the *Revue Générale de Clinique et de Thérapeutique*, UNNA employs the following preparation of ichthyol in the treatment of diseases of the skin:

℞.—Ichthyol	25 parts.
Starch	50 "
Carbolic acid	2½ "
Water	22 "

The ichthyol and carbolic acid are dissolved in the water while hot, and the starch added.

Solution for the Removal of Freckles.—

℞.—Chloride of ammonium	1 drachm.
Hydrochloric acid	1 "
Glycerin	1 ounce.
Fresh milk	2 ounces.

Dissolve, and apply night and morning to the part of the skin which is affected.

Treatment of Fissured Tongue.—

℞.—Carbolic acid	37½ grains.
Tincture of iodine, Glycerin, of each	3 drachms.—M.

Paint the affected parts.—*Journal des Malad. Cutan. et Syph.*

Treatment of Erysipelas.—This is the treatment TALAMON also employs in cases of pustular variola. It consists in spraying with Richardson's apparatus for a minute the outer ring, both within and without the erysipelatous swelling, with the following solution:

℞.—Corrosive sublimate, Tartaric or citric acid, of each	15 grains.
Alcohol (90 per cent.)	1½ drachms.
Sulphuric ether enough to make	3 ounces 1 drachm.—M.

This solution being caustic should not be thrown into the eyes nor in proximity to the nostrils. Spraying should be repeated two or three times a day.

Cayet considers this as the best remedy employed against erysipelas. If it is used in the beginning, the inflammation will yield during the first day, and the disease will be terminated by the fourth day.—*Revue Général de Therapeutique et de Clinique.*

Statistics of Chloroform Administration.—GURLT, in *Le Mercredi Médical*, reports the statistics of 60 observers from July 1st until December 31, 1890. Of these 60

observers, 3 were Austrians, 3 Russians, 2 Swedes, 1 a Hollander, 1 a Belgian, and the rest Englishmen. The report embraces 24,265 cases of narcosis by chloroform. Bardeleben, who had already reported the statistics of 12,000 narcotizations at the Charity Hospital from 1878 to 1890, found 7 cases of death. These 24,265 narcotizings resolve themselves as follows: Of the total number, there were 22,656 narcoses by chloroform, with 71 cases of asphyxia and 6 deaths; 470 by ether, with no asphyxiations or deaths; 1055 by a mixture of ether and chloroform, with 5 asphyxiations and no deaths; by ether and alcohol, 417 cases, with 4 asphyxiations and no deaths; by bromide of ethyl, 27 cases, with no asphyxia and no deaths.

This statement shows 1 death in every 3776 administrations of chloroform alone, 1 asphyxiation in every 319 administrations of chloroform, 1 in every 211 administrations of ether and chloroform, and 1 in every 104 administrations of ether and alcohol. In the majority of cases chloral was given first, and the chloroform and inhaler of Esmarch were used. In 2732 narcotisms the duration averaged one hour; in 278 cases it was much longer, and in 3 cases it was 150, 155, and 180 minutes. At the Charity one cubic centimetre of chloroform was used for each minute of narcotism. According to Morian, the quantity of chloroform employed with Kappeler's apparatus is only one-sixth of the amount used with the ordinary apparatus. In his private clinic he uses 25 grammes of chloroform for each narcotization. The largest doses have been 150 to 180 cubic centimetres. The mixture was composed of 100 parts of chloroform, 30 parts each of alcohol and ether. He has used concurrently with the chloroform injections of morphine.

Bruns thinks the technique of narcotism susceptible of improvement. New experiments on etherization are necessary. Ether excites the heart's action, while chloroform lowers it. Moreover, ether protects against death from cardiac syncope.

Actinomycosis.—DOYEN reports, in *Le Mercredi Médical*, that he has observed two cases of actinomycosis in men. In the first a tumor was present, adherent to the periosteum at the angle of the jaw, and fluctuating, which, upon section, permitted a ropy liquid with but little color to escape, holding in suspension half a hundred actinomyces. In the second a large abscess had become chronic, having disintegrated the muscles of the tongue and caused symptoms of dangerous dyspnœa. These two patients—one treated by extirpation of the tumor and the other by curetting and packing—both recovered.

Chloride of Ethyl as a Local Anæsthetic.—As a substitute for ether spray as a local anæsthetic, M. Monnet has introduced a method of freezing by means of chloride of ethyl, which is highly spoken of by Dr. C. Rédard, clinical professor at the Geneva School of Dentistry. Chloride of ethyl is a colorless liquid possessing an ethereal odor, with a boiling-point of 50° F. It is hermetically sealed in glass tubes containing ten grammes, one end being drawn out into a fine point. When required for use the point is broken off with a pair of forceps, or by hand, at the narrowest part, which is marked by a file-scratch on the glass, and the warmth of the operator's hand is sufficient to cause a very fine jet of the chloride to be projected on the part to be anæsthetized. One great advantage claimed for this method is that no apparatus is required, and its use is advocated in such cases as tooth-extraction, neuralgia, etc.—*The Lancet*, April 11, 1891.

Chronic Rheumatism and the Nervous System.—A novel and suggestive, if somewhat revolutionary, theory in reference to the dependence of chronic rheumatic joint-changes on a morbid condition of the central nervous system is advocated in a work by Dr. Wichmann, of which an abstract is furnished in a recent number of the *Centralblatt für klinische Medicin*. The author began his work six years ago, with a view of explaining the nervous symptoms associated with rheumatic joint affection, and the dependence of these upon a central cause was first suggested by the occurrence of symmetrical phenomena, such as patches of erythema, subcutaneous nodules, etc. Charcot has explained the occurrence of contractures in rheumatism by supposing that there is an inflammation of the articular nerves, the influence of which is transmitted to the centres in the cord, there giving rise to irritation of the motor roots; and the fact that the contracture is usually in the flexed position is explained by the greater power of flexors as contrasted with extensors. But it is pointed out that this would not explain the occasional occurrence of extensor contracture, and that, moreover, in other conditions giving rise to joint affection, such contractures do not take place. As further supporting the theory of a central lesion for those conditions, attention is directed to the occurrence of arthropathies in tabes and other spinal conditions, and it is contended that a feasible explanation of the vasomotor and trophic disturbances—such as "glossy skin"—as well as of the disturbance of sensibility, is offered by such a hypothesis.—*The Lancet*, April 11, 1891.

Application for Diphtheria.—According to *L'Union Médicale*, SIMON recommends the following application in cases of diphtheria:

℞.—Salicylic acid . . . 7 to 14 grains.
Alcohol, a sufficient quantity to dissolve acid.
Glycerin . . . 1½ ounces.
Infusion of eucalyptus . 2 "

A small piece of absorbent cotton is to be wet with this mixture and applied to the throat and false membranes. The application may be made every three to eight hours during the day, and one or twice during the night. If the false membranes are very adherent they may be touched up two to four times a day by a solution composed of perchloride of iron and glycerin, of each three drachms. It may also be advisable to irrigate the nostrils and throat with boric acid solution in the strength of four per cent. Internally, he advises the administration of tincture of chloride of iron, in the dose of ten to twenty drops every twenty-four hours, according to the age of the patient. One drop may be given each hour in a little wine or broth.

CURRENT LITERATURE.

SATURDAY, MAY 2, 1891.

THERAPEUTICS OF DIPHTHERIA.

THE remedies recommended for the treatment of diphtheria are legion; most physicians come to have the greatest confidence in some one. There comes a time, however, when the favorite remedy fails, and then search is made for a better. Professor F. Löffler refers to these well-known facts, and declares the reason to be that hitherto we have not had accurate knowledge of the cause of diphtheria. Statistics to show the value of a remedy are untrustworthy, because many call a simple inflammation of the throat, with slight exudation upon the tonsils, diphtheria.

Löffler asserts, without qualification, that the bacillus described by him is the cause of the disease. Upon these bacilli the effect of different remedies should be studied. This has been done in different ways, which Löffler briefly mentions, by D'Espine and De Marignac, Babès, and by Boer and Behring.

To combat the diphtheria bacilli two things are required: First, to prevent the bacilli from settling upon the intact mucous membrane of the healthy, and upon the parts of the mucous membrane as yet unattacked in those having diphtheria. This can be done by bringing the healthy parts of the mucous membrane in contact with agents which either prevent the development of the bacilli, or, still better, in a very short time kill whatever bacilli are found upon the parts. It goes without saying that the remedies employed must not injure the mucous membrane, nor, by frequent local applications, occasion any injurious action upon the body in general. Second, the bacilli developed in thick heaps in the superficial layers of the mucous membrane must be destroyed, in order to prevent an extension of the process to unaffected parts, and also to prevent the transmission of the disease to others by the throwing off of bacilli capable of infecting them.

The bacilli grow best at a temperature of 99.3° Fahr., upon a blood-serum mixture, composed of four parts ox-blood serum, and one part accurately neutralized bouillon, to which is added one per cent. each of peptone and cane-sugar, and five-tenths per cent. of salt. Experiments to test the efficacy of remedies should be carried out upon bacilli grown under these conditions. Löffler takes ten cubic centimetres of the blood-serum mixture, places this in a test-tube held in an oblique position, so that the surface of the serum reaches to about the upper third of the glass. A platinum wire is then dipped in a pure culture of diphtheria bacilli and drawn across the surface of the serum in a number of places. In from twenty to twenty-four hours the whole surface of the serum becomes covered with a moderately thick coating of bacilli. In the tube, so prepared, a short time after it has been inoculated with bacilli, the fluid to be tested is poured so that it reaches to the upper border of the serum. The quantity is ten or fifteen cubic centimetres. The duration of the contact of the fluid to be tested with the bacilli was made to correspond with the usual duration of the act of gargling. The fluid was poured off immediately after being poured in, or was allowed to remain in contact with the bacilli for ten seconds. After this submission to the action of the agent, the test-tube was placed in an incubator, and examined in several (usually eight) days. The checking of the growth of the bacilli, if any, indicates the degree of efficiency of the agent. The bacilli was not washed out by the mere pouring in and out of fluid; this was proved by trial with distilled water. The conditions present in this case, it will be observed, represent those present when bacilli have just been deposited on a healthy mucous membrane.

If the bacilli are allowed to grow in the serum for several days they form a coating frequently half a millimetre thick. This corresponds with the coating produced by the growth of the bacilli in the most superficial layers of membranes. The duration of the action of agents upon such cultures was limited to twenty or thirty seconds. After the fluid was poured off, a culture was attempted from the depths of the thickest part of the layer.

The scope of Löffler's researches may be judged from the fact that he experimented with corrosive sublimate, cyanide of mercury, metallic mercury, nitrate of silver, chloride of silver dissolved in subsulphate of sodium, potassium permanganate, potassium chlorate, saturated lime-water, aqueous solutions of chlorine, bromine, and iodine, iodine trichloride, chloride of lime solution, iodine-iodide of potash solution, alcohol, allylalcohol, benzylalcohol, ether, chloroform, carbolic acid, salicylic acid, resorcin, pyrocatechin, hydrochinon, tropeolin, benzol, xylol, toluol, anisol, phenetol, pseudocumol, cumol, oil of turpentine, anilin, thymol, creosol, sulphate of creosol, and thirty-eight ethereal oils. The results of the action of these agents are given in some detail. Some of them were effective when the bacilli were upon the surface, in freshly-prepared tubes; but they were ineffective after the bacilli had formed a membrane.

Löffler's general results may be inferred from his recommendations. As a prophylactic at times of threatening danger, healthy persons should, he says, gargle, for five or ten seconds, every three or four hours, with a 1 to 10,000 or 1 to 15,000 solution of corrosive sublimate, or, perhaps better, because the taste is less disagreeably metallic, with a 1 to 8000 or 1 to 10,000 solution of cyanide of mercury. Chloroform water (1 part chlorine in 1100 parts water) and thymol (1 part dissolved in 500 parts of 20 per cent. alcohol) may also be used. Mosler's method of gargling, accurately described in the *Deutsche med. Wochenschrift*, 1881, No. 1, gives the best results. In the form of vapor, such remedies as oil of citron and oil of eucalyptus are especially active.

When a person is affected with the disease, in addition to gargling with the weaker solutions as mentioned, he should gargle, every three or four hours, with agents capable of destroying the cul-

tures. The most appropriate of the latter class, according to Löffler, are solutions of corrosive sublimate, 1 to 1000; 3 per cent. carbolic acid, dissolved in 30 per cent. alcohol; and alcohol and oil of turpentine, each with 2 per cent. carbolic acid. The throat may also be painted thoroughly and repeatedly with 5 per cent. carbolic acid, 2 per cent. bromine, or 1 per cent. chlorine solutions. Concentrated aqueous solutions of creosol, especially *o*- and *p*-creosol, also deserve mention.—*Deutsche med. Wochenschrift*, March 5, 1891.

NEPHRITIS IN PHTHISICAL PATIENTS.

DR. C. VON KAHLDEN says there is frequently found in the kidneys of phthisical patients a pathological change which is generally limited to the cortex. The kidney may either be normal in size or slightly enlarged. The surface of the kidney is usually smooth and pale yellow; the capsule can be easily stripped off; the cortex is normal or slightly thickened, and always shows a characteristic slightly yellow color. The medullary substance, like the organs in general, is usually pale and anæmic.

The microscopic appearances are best studied from preparations which have been hardened in Flemming's solution. The changes, which are principally degenerative in character, affect primarily the parenchyma. The interstitial infiltration and proliferation seem to be largely secondary, and dependent upon the degree of cell-destruction; and as evidently the fatty epithelial cells may be replaced for a time by newly-formed epithelial cells, this explains why the symptoms of proliferation in the interstitial tissue are, on the whole, so insignificant. The degeneration and the interstitial changes always occur in foci. The degeneration affects both the glomeruli, and especially their endothelium, and also the convoluted tubules.

The rather large fatty cells, seen frequently in the bloodvessels of the kidneys, are in part doubtless endothelial cells, as their partial connection with the vessel walls proves. Whether these cells come also from other organs, and especially whether they enter the circulation after the parenchyma of the lung is destroyed, must remain undecided; the latter has been supposed to be the origin of similar fatty cells found in the kidneys in pneumonia.

That these changes are chronic is shown by the thickening of the capsule, the atrophy of individual glomeruli, and the transformation in many cases of the club-shaped epithelium of the uriniferous tubules into short cylindrical or cubical cells. The duration of the disease cannot be told by the appearance of the kidneys. Accurate clinical observation, too, is often unreliable, for the disease continues for a long time almost without symptoms. Œdema is very rarely found, even after death. Albumin seems to be present only transiently and in insignificant quantity. Moreover, if slight œdema does occur, it could be attributed to disturbances in circulation, and the albuminuria to hectic fever.

Von Kahlden regards the disease as a chronic parenchymatous nephritis. As to the connection which exists between it and phthisis, he thinks it probable that the nephritis is caused by a ptomaïne produced by the tubercle bacillus. The fact that it is a degenerative process agrees with this supposition.

Both Becquerel and Rayher have declared that tuberculosis and Bright's disease are frequently associated. Peacock found phthisis in 30.7 per cent. of one hundred and seventeen cases of kidney disease; Frerichs met with six cases of phthisis in forty-two cases of Bright's disease; while Bamberger places its frequency at 15 per cent. Von Kahlden goes still further, and declares that degeneration of the kidney epithelium is rarely absent in phthisis which is progressing to any degree. He admits, however, that it may be so insignificant, that the microscopic changes can only be recognized by special attention and care. The fact that hypertrophy of the heart is generally absent accounts for the relative insignificance and focal distribution of the anatomical changes in the kidneys, and also for the general anæmia.—*Centralblatt f. allgem. Pathologie und path. Anatomie*, February 1, 1891.

THE TREATMENT OF MALARIA.

LAVERAN finds that in the contest between the organism and the hematozoons, the leucocytes play an important *rôle*. It is a well-recognized fact that if an insoluble and finely-pulverized substance be injected into the blood of an animal the leucocytes rapidly invade this powder and charge themselves with its elimination from the blood (Ponfick, Hoffman, Langerhaus).

The researches of Metchnikoff prove that the leucocytes not only invade inert powders and the dead bodies of microbes, but also, in a great number of cases, the living pathogenic microbes, and that this property, known as *phagocytosis*, plays a very important *rôle* in the evolution of infectious diseases and in the phenomenon of immunity. The cells of the splenic pulp and those of the endothelium, of the connective tissue, and of the pulmonary epithelium participate in this power. He has also concluded that the paroxysm of the fever persists during the life of these microbes in the blood, ceasing only when the parasites become the prey of the phagocytes. Especially is this marked in relapsing and malarial fever. The resistance which the microbes exert against this action of the leucocytes may be of long duration if they be lodged in the spleen or in the marrow of bone.

Wyssokowitsch has noticed that the spores of the *bacillus subtilis* lodged in the spleen were still living at the end of three months, an interesting fact in a point of view of the study of latent microbism.

Metchnikoff, Golgi, Gamaleia, and others insist upon the destructive action of heat upon the microbes, while, on the contrary, cold diminishes the activity of the phagocytes. It is well known that an organism placed in the best general condition will resist most successfully the inroads of the pathogenic microbes, whilst all debilitating causes militate against the cure of malaria. Laveran himself has observed in animals whose blood contained hæmatozoa, that under the influence of an abundant ali-

mentation the microbes disappeared, while inanition favored their development. The anæmic diseases—over-fatigue, ill nourishment—are attended with frequent relapses of the fever, and the salts of quinine themselves seem to become powerless in preventing these relapses. On the contrary, under the influence of only a good regimen and rest, frequently the condition of malarial patients will ameliorate, the anæmia grow less, the relapses less frequent, and a cure may occur without the intervention of a more active medication, simply because the organism has been placed in the best hygienic condition.

All the tonics have, consequently, a favorable action upon the progress of the disease, and foremost among these may be placed wine, coffee, and arsenious acid. Arsenic taken in small doses is of great service in the treatment of rebellious fevers with the malarial cachexia. If given in large doses, however, relapses of fever will often be produced, and the condition of the patient aggravated. Hydrotherapy is valuable, always used as a tonic medication. It succeeds sometimes when other medications have failed. It is well to know, however, that the first treatment may provoke a relapse; hence it is necessary to proceed with prudence, beginning with short and lukewarm douches before arriving at cold douches, not touching at first the spleen, and prescribing some doses of quinine at the same time. One can readily understand that a cold douche, especially if applied over the splenic region or following a paroxysm, will cause contraction of the splenic vessels, driving the hæmatozoa into the circulation. The malarial patients who in thermal stations—Vichy, for instance—take these waters both internally and in the form of baths, often have relapses at the beginning of the treatment, when they do not proceed with prudence. The change of climate is often beneficial to these patients, because the great heat of malarial climates is very debilitating, giving rise to exhausting sweats, nights without rest, and dyspepsia—all of which are corrected in a better climate. Quinine is of invaluable service in the treatment of these fevers, especially acting as a specific in the chronic forms. It has a very powerful destructive action upon all microbes, especially upon the protozoa, to which group the hæmatozoa belong. These rapidly disappear from the blood of patients who are submitted to a course of quinine medication. The spherical bodies and the flagellate forms disappear first. The treatment must be continued for some time to insure entire destruction of the microbes. It is probable that the phagocytes invade more readily the hæmatozoa when they have been killed or benumbed by the salts of quinine, but that the activity of the phagocytes is not directly influenced by the quinine.—*La Médicine Moderne*, February 19, 1891.

STRANGULATED HERNIA.

DAYOT, FILS, in the *Archives Générales de Médicine*, February, 1891, reports a series of observations upon the various forms of strangulated hernia. In the space of four and a half years he and his father have performed colotomy twenty-two times to remedy the accidents arising from strangulation of a hernia. In thirteen instances the intestine was absolutely sound, and in most of the cases they were able to reduce the hernia and terminate the operation by the radical cure of the hernia. In three instances the termination of the case was in death—one an old woman of seventy-five years, who succumbed upon the fifth day to a pulmonary congestion, the wound being on the way to complete union; two men, who were quite exhausted, with grave general symptoms, died in collapse, notwithstanding their surgical intervention. The remaining cases were cured entirely and did not merit special attention other than that among them was a congenital hernia of the peritoneo-vaginal-testicular variety, with a large concomitant hydrocele absolutely transparent. The patient, who was thirty-three years of age, had had this hernia since the age of fifteen years, and had already suffered from the accidents of strangulation, which, however, had yielded to taxis. They also operated upon an umbilical hernia in a woman fifty years of age, the hernia being of twelve years' standing. The tumor was as large as a small fœtal head, moderately tender, uniform and resonant. The skin covering it was violaceous, of an elastic consistency, with disseminated points of induration. Very moderate and brief attempts at taxis proving fruitless, colotomy was performed, and at the end of twenty-five days the cure was complete. Upon making the incision a large quantity of sanguinolent ascitic fluid was discharged, and palpation revealed multiple indurations of the sub-umbilical region resembling chronic peritonitis. They believed that there was a hernial peritonitis, attributable, at least in a certain measure, to the peculiar congested state of the peritoneum. The displacement of the intestinal arch by the circulatory troubles which were produced had without doubt favored the predisposition to serous inflammation. This hernial peritonitis had not only produced a simple irreducibility of the tumor, but it had in addition determined intestinal obstruction with all its clinical characteristics. This had arisen from the great thickening of the tunics, the binding together of the two portions of the intestinal loop by false membranes, and a total increase in the volume of the tumor, so that, in spite of its large dimensions, the ring had become insufficient to contain the pedicle without compressing it.

From the experience derived from the series of observations made, they have come to recognize the great danger of temporizing. Without waiting to diagnose between the pseudo-strangulation of Malgaigne and true strangulation, they have at once resorted to herniotomy to settle the doubt which might exist. The most frequent cause of the intestinal occlusion, in their experience, has been external strangulation with acute or subacute course, necessitating prompt interference on the part of the surgeon. Intervention has become the rule, and this line of conduct, which was very clearly outlined in the thesis of Boiffin (1887), applies itself as well to umbilical hernias as to the other forms of hernia. The statistics of herniotomy

for strangulated umbilical hernia have been much improved since the employment of antiseptic methods. In operating in cases where the bowel has become gangrenous, the diseased portion has been removed and the healthy borders of the artificial anus thus formed have been stitched with care to the walls of the hernial sac, at the level of its neck. All penetration of stercoraceous material into the peritoneal cavity is thus prevented. Enterectomy has been the operation selected, in the majority of cases, in preference to enterorrhaphy, although the two may be combined. If enterorrhaphy be first performed it may have to be supplemented by an enterectomy.

SOCIETY PROCEEDINGS.

FIFTH FRENCH CONGRESS OF SURGERY.[1]

(Continued from page 474.)

PROF. VERNEUIL presented a most interesting case of "Spinal Fistula Giving Passage to Arachnoid Fluid." The patient was a young lady. Sixteen months before he saw her she felt a severe pain in the sacral region, which was followed by the gradual development of a tumor, which, when it acquired the size of a small orange, suddenly burst, allowing a quantity of pus to be discharged; pain immediately disappeared, but the abscess discharged until she presented herself to Dr. Verneuil.

He found at two inches from the median line in the right sacral region a fistula which was in communication with a denuded portion of bone situated on the posterior surface of the spine on a level with the third vertebra. The surgeon now explored with the thermo-cautery; and strange to say, instead of finding a denuded portion of bone, his finger penetrated into a depression which was the third posterior sacral foramen. This seemed enlarged and rough, and was, therefore, curetted. The next day, however, it was found that the patient's dressing was perfectly soaked with a reddish serous exudation. He was then told that there had been, on several occasions before this, sudden drenching by a liquid coming from the fistula, and this had been followed by coma a few days later. This Dr. Verneuil had also the opportunity of witnessing; for on the fourth day after exploration she was found in a state of deep coma, without fever or vomiting, but in a singular state of oppression. This liquid was collected with absorbent cotton and examined chemically. It was found to contain cholesterin, a little fat, albuminoid substances, earthy and alkaline phosphates, a little urea, and sugar. Hence, this is a clear case of fistula arising from an acute abscess of bony origin, which gave vent to arachnoid fluid, bringing on cerebral symptoms without other effects on the general system.

DR. BAZY, of Paris, presented the history of two cases in which he made an exploratory opening into the spinal canal. The first one, in November, 1886, was made on a woman for a hydatid cyst compressing the cord and giving rise to motor and sensory symptoms in the lower extremity. The woman died, three weeks after operation, from suppurative nephritis: the catheter was passed several times a day by the nurse without order from the surgeon.

In another patient, twenty-nine years old, syphilitic and hysterical, suffering from paraplegia, with contracture during extension, anæsthesia, etc., it was not settled by our best men in neuro-pathology whether the symptoms were those of hysteria or of a tumor compressing the cord. It was then decided to perform an exploratory operation, which was done, and it gave negative results. The operation, being made aseptically, gave rise to no accidents. The author insists on the fact that when the dura mater has been opened, this membrane should be carefully united without drainage, to prevent exudation of the arachnoid fluid.

DR. DOYEN, of Rheims, presented a case of trephining for serous cyst, in a young man, aged sixteen, who, since the age of seven, had been suffering from epileptic fits, left hemiplegia, and great weakness of intellect. A large cranial projection appeared on a level with the squamous portion of the temporal bone on the affected side. Specific treatment having given no results, the patient was cured two months after trephining, when intra-cerebral albuminous cysts, containing more than 350 grammes (12 ounces) of liquid, were found.

DR. PICQUÉ, of Paris, presented a patient, a lady, nineteen years of age, who shot herself in the frontal region. She was comatose for six days, when she recovered all her faculties. Still there was persistent headache on the right side. Exploration demonstrating penetration of the ball, the diagnosis of intra-cerebral abscess was made. A large trephine was applied, and the frontal bone was found perforated, as well as the dura mater. The cerebral surface appeared intact, except at one part, where the gray substance formed a hernia. The cerebral substance was incised with the knife, allowing a great deal of pus to flow out. The bullet, however, could not be found. In five weeks the patient was absolutely cured, and finds herself well today.

DR. BROCA, of Paris, presented three cases of trephining. He divides the indications for the operation into three classes, and has a history for each: 1. An exterior lesion, which indicates the point upon which to operate. 2. The endeavor to find a cerebral lesion of known or unknown nature, the seat of which can be diagnosticated, by putting together the symptoms produced, according to our present powers of cerebral localization. 3. Operation without the guidance of localization; the nature of the lesion having, however, been diagnosticated, and, from our anatomo-pathological knowledge, we know its usual seat and where to attack it.

In his first case Dr. Broca had one sign of localization —an athetose contracture of the upper extremity; but according to the history of the disease and form of the head, he diagnosticated intra-ventricular hydrocephalus, and thought that the first surgical indication was to relieve the excentric compression of the brain by evacuating the liquid. Using Keen's process, he opened and drained the left lateral ventricle, as the contracture was situated in the right upper extremity.

The second case was an infantile spasmodic brachial monoplegia. The athetose contracture of the left upper extremity certainly resembled the preceding case, but the history of the disease and form of the head pointe

[1] Held in Paris from March 31 to April 4, 1891.

to infantile cerebral sclerosis. Moreover, for the past four years the child had suffered from attacks of Jacksonian epilepsy, which certainly had their starting-point in the thumb. Trephining was resorted to, and a cyst was found on the motor centre of the thumb—that is, at the postero-inferior extremity of the centre for the upper extremity. Epilepsy has almost totally disappeared, the patient only suffering from agitation and a few convulsive movements during the night.

His third case was one of complicated fracture of the skull, which had been trephined at the time of the accident. The immediate result was good, but a few months after, the patient suffered from Jacksonian epilepsy of the inferior maxillary and left upper extremity. He still had a cranial fistula. Dr. Broca removed an infected piece of bone in contact with the dura mater, and the fits have become much less frequent and are becoming less and less marked.

DR. MICHAUX, of Paris, presented the history of a case of "Non-traumatic Meningeal Hæmorrhage Cured by Trephining." This man was brought to the hospital in a state of apoplexy, with left facial hemiplegia and paralysis of the right superior extremity. During the following days the paralysis extended to the right lower extremity; epileptiform convulsions then set in and became more and more frequent. The patient presented no sign of fracture of the cranium nor bleeding at the ear, nose, etc.; neither sub-conjunctival, pharyngeal, nor cranial hæmorrhage was observed. But it is learned that the patient was an inveterate absinthe-drinker. Several months ago he was compelled on two occasions to give up his occupation on account of intense headaches and vertigo. His urine contains 0.65 grammes of albumin and only 2.50 grammes of urea.

The operation was performed on the left side along the Rolandic line; two inches of bone were removed by the trephine and the dura mater was incised. Immediately, large black clots, about two tablespoonfuls, were thrown out. Iodoform dressing was applied. The patient has improved rapidly since the operation, most of the symptoms having disappeared, and the remaining ones are doing so gradually. This was certainly a case of spontaneous hæmorrhage of alcoholic or uræmic origin.

DR. MANOURY, of Chartres, presented the history of a case of "Craniectomy," which demonstrated that the favorable results obtained after the operation are not very permanent. He operated on a microcephalic girl of four years of age, who, at the age of three months, had her fontanelles completely closed. At six months convulsive movements in the two upper extremities appeared. She had never been able to walk or stand, because of a permanent contracture of the muscles of the posterior region of the leg. The child does not masticate her food.

She was operated upon, and an antero-posterior groove four inches long made in the left parietal bone, extending from the coronal suture to the lambdoid. As soon as the operation was over, the little patient became very calm, and did not cry any more. The upper extremity ceased to move, the head became straighter, and the look was more intelligent. The hand could be moved, and the child could masticate its food. The contracture of the gastrocnemii ceased, and the patient was able to remain on her feet. This favorable stage lasted two months, when the former symptoms all returned to their previous state, and mensuration of the cranium did not indicate the least increase in its dimensions from the time of the operation five months previous.

DR. TOISON, of Douai, spoke on a new mode of performing sections of the cranium. The objections to the mode usually employed are, that after trephining there is a permanent loss of bony substance, as the reinsertion of the disc of bone is not practicable by every surgeon. Wagner's process, says the author, is a great advance, as it consists in a temporary resection of an osteo-cutaneous flap, which is returned to its place as soon as the cerebral operation is over. Dr. Toison has repeated the experiment, made by Julius Wolff in 1863, on rabbits. He found that in dogs there was a very firm bony union two or three months after the operation, provided that no suppuration took place; the dura mater, however, does not seem to take part in this consolidation. The speaker has found that sections made by a saw become much more firm than those made with a chisel. He has applied this process to human surgery, and passes a thin flexible saw between the bone and dura mater, through four little perforations which have been made at the four angles of the bony flap which is to be uncovered; when the last point of attachment remains, it is fractured by introducing a small chisel under the rectangular piece of bone; this process has also the advantage of abolishing the hammering of the cranium.

DR. LEDRU, of Clermont, read a paper on "Extirpation of a Rectal Epithelioma through the Anus." The operation was performed after having previously well dilated the parts; but the disease soon recurred, and as the patient refused all other interference, the speaker used an application on the epithelial ulcerated surface of a layer of Conquoin's paste (chloride of zinc, 32 grammes; wheat-flour, 24 grammes; oxide of zinc, 8 grammes). A great deal of pain was experienced at first, but afterward all went well, and two months later there was not the least sign of recurrence of the trouble.

DR. BERTHOMIER, of Moulins, read a paper on "Osteo-myelitis of the Ribs," in which he said that osteo-myelitis developed itself in the ribs as in the long bones; there are often found two points affected on a level with the epiphyseal joints. One is anterior and is well known, presenting itself as a projection on a level with the chondro-costal articulation; while the other point affected is posterior, on a level with the head of the bone toward the pleural cavity, and presents all the symptoms which might be mistaken for a pleuritic effusion, dulness, murmur, ægophony, etc. These two points infected, communicate with each other, although exteriorly we find no trace of such propagation.

The following case illustrates very well the above-mentioned fact: A patient who had been suffering for six days from osteo-myelitis, presented when first seen a well-defined tumor of the size of a very small orange on a level with the chondro-costal articulation of the fifth right rib; second, behind or posteriorly along the spinal border of the scapula, there was a zone of about ten centimetres, where there existed dulness, murmur, and ægophony, while exteriorly there was no trace of

inflammation; third, the least trace of inflammation existed in the middle of the rib—no dulness, no murmur, no ægophony. The surgeon then aspirated the projecting tumor at the chondro-costal articulation, and washed the cavity out with a bichloride solution. Percussion and auscultation in the posterior region immediately after demonstrated the absolute disappearance of the dulness, murmur, and ægophony.

DR. TUFFIER, of Paris, gave his personal experience in "nephrorrhaphy." He has performed the operation fourteen times, and the symptoms which have encouraged him to operate were: first, pain; second, gastric symptoms; third, neurasthenia. All these three symptoms constitute the clinical types of the movable kidney. The painful variety is the most frequent and most favorable for treatment, as in ten of his patients the pain disappeared after operation, while in the four others it was greatly diminished. The dyspeptic variety is rarer, he having had two cases, with one failure. This variety is often accompanied by hepatic lesions. The neurasthenic variety is not very frequent, and comprises all neurasthenic symptoms, including hysterical attacks; in three cases he had two successes.

As regards clinical forms, Dr. Tuffier divides the movable kidney into two varieties; first, the simple movable kidney; second, the complicated movable kidney. The simple movable kidney is of traumatic origin; it is a real dislocation of the kidney, and gives the best operative results. The complicated movable kidney is a slow and progressive displacement, accompanied or followed by a descent of the abdominal viscera: the abdominal parietes are soft, depressible, and there may exist a hernia, a rectal or uterine prolapse, or the stomach may be dilated; the abdomen in those cases is better treated by orthopedic means.

Out of fourteen operations, Dr. Tuffier lost one patient by tetanus on the eleventh day, when the lumbar wound was already closed, the thirteen others having been cured. The painful symptoms have disappeared. He concludes by saying that nephrorraphy is one of the most efficacious amongst renal operations; as, out of a series of 149 operations collected, the mortality has only been 3.4 per cent. It is also very successful, for out of 73 typical operations there were 80 per cent. of complete cures or certain ameliorations.

PROF. HEYDENREICH, of Nancy, read a paper on "Partial Excision of the Pubic Bone for the Removal of a Vesical Tumor." He recommends partial excision when the vesical tumor is very deeply situated; he then resects a fragment of bone two centimetres long and four centimetres broad without danger to the pelvis, by following oblique lines passing outside, or even inside, the spinous process. He says that whenever a surgeon finds difficulty in reaching a deep-seated tumor he need not hesitate to perform this operation, which only takes a few minutes.

DR. PONCET, of Lyons, read a communication on "A New Process of Suturing Tendons." The following operation was done on a young laborer who had the tendo Achillis cut by the stroke of a spade. He was untreated for forty days; at the end of that time the cutaneous wound was closed, but the two ends of the tendon were one inch apart. The operation was performed as follows: A V-shaped incision was made on the posterior aspect of the heel and the flap was dissected up; afterward a vertical calcaneotomy was made by detaching a posterior slice of the calcaneum about one centimetre thick, the osseous fragment being rendered absolutely movable. Then this osseous fragment was pushed up, and the two ends of the tendon were sutured, while the lower end of the bony fragment was fixed to the bone by means of an aseptic ivory peg; the cutaneous flap was next sutured into position. This method, the author thinks, could be applied to certain cases of tearing away of the ligamentum patellæ or the tendon of the triceps brachialis.

CORRESPONDENCE.

DEFEAT OF THE OBLIGATORY THREE YEARS' COURSE BILL IN MISSOURI.

To the Editor of THE MEDICAL NEWS,

SIR: An attempt was made this winter by the friends of reform in medical education to secure the enactment of a law in Missouri defining the term "medical college in good standing" in the existing Medical Practice Act, to mean a college requiring, among other common conditions, that the applicant for graduation must have attended at least three annual collegiate courses. The Missouri Practice Act is copied from that of Illinois, and conveys the same powers to the State Board of Health which have enabled the Illinois Board to set on foot at home and abroad such a grand reform in medical education. The Missouri Board declined assuming the responsibility of following this famous example, but by resolution referred the matter to the General Assembly then in session. A bill was accordingly introduced in the House, was *unanimously* recommended by the House committee, and eventually passed by the gratifying vote of 85 ayes to 22 noes. The bill was subsequently lost in the Senate by a vote of 14 noes to 10 ayes. Legislation was crowded into the last few days of the session, so that the bill came up in the Senate at the very last, leaving no time to obtain a reconsideration. The defeat in the Senate was entirely unexpected, though very powerful political influence was felt to be inimical on purely personal grounds.

The reform movement originated in St. Louis. Encouraged by the appearance in the Illinois State Board of Health Report of the names of most of the medical colleges in Missouri favoring the three years' course (at present all but one do appear), a committee was formed, under whose auspices a circular was mailed to the profession of the State. A large number responded favorably, the negatives being so few as to cut no figure at all. These names and addresses, together with the names of the three years' colleges, were printed in the form of a memorial and presented to the Legislature; also a statement to the effect that in no other part of the civilized world were diplomas issued under at least four years' attendance upon college work; that the right of the States to regulate medical education had been affirmed in the Supreme Courts, both State and national, since the welfare of the people requires protection "against the consequences of ignorance and incapacity as well as of deception and fraud"; that all over the country reform in medical education is being agitated, and in a number of

States already laws have been enacted requiring the three years' course, etc. Of the fourteen medical institutions in Missouri granting diplomas, only one, at the present time, opposes the bill. This, the Marion Sims, was lately organized, graduating this year its first class. Its prospectus opens by declaring that the "chief object" of its organization is "the elevation and securement of an approximate perfection of the standard of medical instruction in the West." Its dean has just sought to further this laudable object by bitterly opposing at the Capitol the Three Years' Bill. By the aid of political friends high in office, and by working on the prejudices of some, he has succeeded for the time: conduct which Secretary Rauch, of the Illinois Board of Health, in a recent address on Medical Education (Missouri Medical College semi-centennial celebration, March 31st), tersely characterized as "dishonorable, unprofessional, and mercenary."

The sum of the argument (!) raised against the memorial presented in the Legislature was this: To require attendance upon a course of three years would work a hardship upon "the poor young man"—it would be class legislation—therefore undemocratic, a most deadly sin. Of course, the voice of civilization demanding better medical training, the decision of the Supreme Court of the United States pointing out the duty of the State to protect its people "against the consequences of ignorance and incapacity"—such testimony as this can have no weight in the grand scheme quoted, "The elevation and securement (!) of an approximate perfection of the standard of medical instruction, etc."

CHAS. A. TODD, M.D.,
Of the Committee on Memorial.

WEATHER ELEMENTS AND TRAUMATIC NEURALGIA.

To the Editor of THE MEDICAL NEWS,

SIR: I herewith send you a paper by Captain Catlin, of the United States Army, who was injured by a round shot in battle in 1864, which accident resulted in an amputation below the knee. [See page 489.]

From this time he suffered more or less from constant neuralgia. Seeing in one of my books a reference to the effect of storms upon this condition, he applied to me for relief. I requested him to keep a record of the influence of storms upon his neuralgia, and the result of this was three papers: One by myself in conjunction with Captain Catlin, based upon his information, to be found in the *American Journal of the Medical Sciences*, April, 1877; the second by Captain Catlin, with a short introduction by me, *American Journal of the Medical Sciences*, June, 1883; and finally the long and very elaborate paper on the effect of storm and electrical conditions upon pain, as well as of the influence of ozone. This paper will appear in full in the *Proceedings* of the American National Academy of Sciences. As, however, it will be a long time before it can be published, and as it is of great length and of a purely scientific character, I asked him to make a brief abstract of it, which I herewith give to the medical public with this short explanation.

If anyone is especially interested in this subject, a reference to the original document will enable him to trace out this research, which was only made possible by the circumstances of the situation. In other words, there was injury, traumatic neuralgia, acquaintance with electrical conditions, and the possession of such patience as is necessary to a study of this kind.

S. WEIR MITCHELL.

SUPERNUMERARY DIGITS.

SIR: In THE MEDICAL NEWS for March 16, 1889, page 307, I reported a case of supernumerary digits, and in THE MEDICAL NEWS for April 13, 1889, page 418, two more cases are reported by Dr. W. F. Drewry, of Petersburg, Va. On September 29, 1889, I attended Mrs. C. (the mother of the case I have already reported) in her third confinement. The labor, although slow, had nothing uncommon about it, but the child, a male, had a supernumerary digit attached to the outer side of the left little finger. It measured about one-fourth of an inch in length; was furnished with a nail; and was attached to the little finger by a thin pedicle.

When the child was about two weeks old, the supernumerary digit was removed without any difficulty.

Mrs. C.'s first baby was born without any such deformity; the second was born with two supernumerary digits; and the third was born with one. The first child having been born without these extra digits, why should the second and third have been born with them? As the second was born with two, why had the third only one? The second and third having supernumerary fingers, why did the first escape?

M. A. DE WOLF SMITH.
NEW WESTMINSTER, BRITISH COLUMBIA.

NEWS ITEMS.

New Jersey State Medical Examining Board.—The following questions were asked by the New Jersey State Medical Examining Board at their meeting on Thursday, April 9, 1891:

OBSTETRICS AND GYNECOLOGY.

George W. Brown, M.D., Examiner.

1. Describe the uterus.
2. What is the corpus luteum?
3. Name the contents of the broad ligament.
4. Describe the fœtal circulation.
5. What changes take place in the vascular system of a child after birth?
6. What are the causes and evil effects of tardy and precipitate labors?
7. Give the pathology of phlegmasia dolens.
8. Give the differential diagnoses of ovarian tumor and tubal pregnancy.
9. Give the causes, symptoms, results, and treatment of pelvic cellulitis.
10. Give the symptoms and treatment of erosion of the cervix.

PRACTICE OF MEDICINE.

William Perry Watson, M.D., Examiner.

1. Locate the valves of the heart and the points at which their respective murmurs are heard with the greatest intensity.

2. Give a characteristic prodromal symptom (non-eruptive) of: *a*, mobilli; *b*, scarlatina; *c*, variola; *d*, varicella.

3. Coma.

4. Râles.

5. Renal casts.

6. Angina pectoris.

7. Spinal sclerosis.

Give varieties, causes, diagnoses, and prognosis of each.

8. Describe Bell's paralysis.

9. Describe Cheyne-Stokes respiration.

10. Give the differential diagnosis between acute, catarrhal and diphtheritic laryngitis.

SURGERY.

Aaron K. Baldwin, M.D., Examiner.

1. Give the treatment of a case of retention of urine.

2. Give the different varieties or hernia, and describe operation for strangulation of any one of these varieties.

3. How would you detect dislocation of the head of the femur into the thyroid foramen?

4. What are the symptoms of cerebral concussion? Of cerebral compression?

5. What is Pott's fracture? Describe treatment.

6. Describe varieties of luxation at elbow-joint.

7. Give varieties of luxation at shoulder-joint.

8. Describe the pathological condition of anthrax.

9. Give the various kinds of ulcers of the leg, and how would you treat one of them?

10. Give the cause, course, and termination of periostitis.

ANATOMY.

A. Uebelacker, M.D., Examiner.

1. Name the muscles of the forearm.

2. Describe the elbow-joint.

3. What muscles are in relation with the elbow-joint?

4. What arteries and nerves?

5. Describe the arachnoid membrane.

6. Describe the pancreas.

7. Describe the ophthalmic artery, and give names of its branches.

8. Describe the superior vena cava.

9. Give the origin and name the branches of the fifth nerve.

10. Give the average weight and principal divisions of the brain.

PHYSIOLOGY.

D. R. Atwell, M.D., Examiner.

1. What produces the first sound of the heart?

2. Describe the coagulation of blood.

3. Trace the fœtal circulation.

4. How is the heart's structure nourished?

5. What is a lymph node?

6. Where is the centre of taste?

7. What juices are concerned in the digestion of starch?

8. Give the normal temperature, pulse, and respiration of an adult.

9. Give location and function of the spleen.

10. What is *complemental air* as related to respiration?

CHEMISTRY.

Eugene Tiesler, M.D., Examiner.

1. Define the terms dialysis, distillation, sublimation, decantation, precipitation.

2. State what you know about soda bicarbons.

3. How is phosphoric acid prepared?

4. Define haloid salt. Give examples.

5. What is alum? How does it differ from alumen exsiccatum?

6. Give tests for albumin in animal fluids.

7. What is Hg? Name four officinal preparations thereof.

8. What is cupric arsenite? Give antidotes.

9. What is aqua regia? Why is it so called?

10. In what form is lime present in lime-water?

HISTOLOGY, PATHOLOGY, AND DISEASES OF EYE AND EAR.

H. G. Wagoner, M.D, Examiner.

1. Describe the nerve-cells.

2. Give the minute anatomy of the skin.

3. Give the minute anatomy of the arterial walls.

4. Describe the lesions of infantile paralysis.

5. What are the pathological processes in cirrhosis of the liver?

6. How many kinds of pleurisy are there, and what are the pathological changes in each?

7. What are the varieties of endocarditis, and what anatomical changes do we find in each?

8. What is myopia, presbyopia, and astigmatism, and treatment for each?

9. What is strabismus and its treatment?

10. What lesion of the ear may result from the use of the nasal douche?

HYGIENE AND MEDICAL JURISPRUDENCE.

A. H. Worthington, M.D., Examiner.

1. Give the best method of disinfecting a room after a contagious disease.

2. What is ozone?

3. Name two of the most valuable disinfectants.

4. What are ptomaines? Give types of different action and origin.

5. What is meant by "hardness" in water, and what are the causes and the different degrees of hardness?

6. State briefly the details to be noted in making a post-mortem examination for medico-legal purposes.

7. In a case of supposed drowning, how could you prove the body was alive or dead when submerged?

8. Name the different forms of insanity.

9. Describe the fœtus and its appendages at the beginning of the fourth month of intra-uterine life.

10. Give the symptoms of poisoning by opium and the treatment.

MATERIA MEDICA AND THERAPEUTICS.

Wm. L. Newell, M.D., Examiner.

1. What is dialyzed iron, and how is prepared?

2. What is cantharides? Its uses and doses when internally administered?

3. What is chloroform? Its specific gravity, uses, and doses?

4. Give the formula and mode of making camphorated tincture of opium.

5. Give the formula of the compound cathartic pill of the U. S. P.

6. Give average internal dose of each of: 1, atropia; 2, morphine; 3, strychnia, for a child four years of age.

7. How is antifebrin prepared? What are its physiological effects, uses, and doses?

8. Describe infusion, decoction, maceration, and digestion.

9. Give five irritant poisons and the antidotes of each.

10. Write a prescription containing nitro-glycerin, and give the symptoms to be relieved.

HOMŒOPATHIC MATERIA MEDICA AND THERAPEUTICS.

A. H. Worthington, M.D., Examiner.

1. Explain the difference that exists between the primary and secondary action of a medicine, and give an example.

2. Name the most important remedies, with their doses, for dysentery in an adult.

3. Differentiate the brain symptoms of cuprum aceticum and stramonium.

4. Give the thoracic symptoms of bryonia alba.

5. Give the enteric symptoms of colocynthis.

6. Describe the characteristic inflammation of belladonna.

7. Give the urinary symptoms of cannabis sativa.

8. Name the most valuable remedies in diphtheria—the simple and malignant forms.

9. Describe a disease in which hydrastis canadensis is the indicated remedy.

10. Give the skin symptoms of antimonium crudem.

The Medical and Surgical Reporter.—With the issue of *The Medical and Surgical Reporter* of April 25th, Dr. C. W. Dulles severed his connection as editor with that journal. During the three years Dr. Dulles has edited it he has not only proved himself to be possessed of a facile pen and editorial ability, but has doubtless given satisfaction to the subscribers of *The Reporter*. The next issue will appear under the editorial charge of Dr. E. T. Reichert, of the University of Pennsylvania, whose contributions to medical literature during the last few years have not only been interesting, but valuable. Dr. Reichert brings to *The Reporter* a mind well trained for the carrying out of his duties, and possesses the faculty, so necessary to the successful editor, of making friends through never-failing courtesy.

Jefferson Medical College.—At a meeting of the Board of Trustees of Jefferson Medical College held April 22d, Dr. H. A. Hare was elected Professor of Therapeutics and Materia Medica, to succeed Dr. Roberts Bartholow.

DR. J. M. BALDY, of Philadelphia, has been elected Professor of Gynecology in the Philadelphia Polyclinic and College for Graduates in Medicine.

A New Sanitary Journal.—The first number of a monthly periodical, devoted to sanitation, has been published at Dublin, Ireland. It has been named *The Health Record*, and will be edited by Edgar Flinn, M.R.C.S.I., of Kingstown.

Medicine has the Right-of-Way.—At Berlin, a corporation ordinance has been adopted which will give to the carriages of physicians the right-of-way through streets that are crowded. In order that these carriages may be at once distinguished from others like them, the coachmen who drive them will don a white hat. This new headgear has been proposed for the prevention of embarrassing delays of medical men in the principal thoroughfares, and will become a recognized demand for the right-of-way at all times.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM APRIL 21 TO APRIL 27, 1891.

BUSHNELL, GEORGE E., *Captain and Assistant Surgeon* (Camp Pilot Butte, Wyoming).—Is granted leave of absence for twenty-one days, to take effect on or about May 1st next.—Par. 9, *S. O. 49, Department of the Platte, Omaha, Neb.*, April 20, 1891.

By direction of the Acting Secretary of War, ALFRED A. WOODHULL, *Major and Surgeon*, is detailed to represent the Medical Department of the Army at the International Congress of Hygiene and Demography at its meeting in London, England, from August 10 to 17, 1891. He will leave his present station not later than June 1, 1891, and will proceed to London. After the adjournment of the Congress, he will return to his proper station. While abroad under this order, and before returning to the United States, he will visit, on official business, such points in Great Britain as may be deemed necessary by the Surgeon-General of the Army.—Par. 17, *S. O. 91, A. G. O., Washington, D.C.*, April 22, 1891.

By direction of the Acting Secretary of War, WILLIAM L. KNEEDLER, *Captain and Assistant Surgeon*, is relieved from duty at Jackson Barracks, La., and will report in person to the commanding officer Fort Logan, Col., for duty at that post, reporting also by letter to the commanding general Department of the Missouri.—Par. 2, *S. O. 88, Headquarters of the Army, A. G. O., Washington*, April 18, 1891.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING APRIL 25, 1891.

MCMURTRIE, D., *Medical Inspector.*—Detached from Navy Yard, New York, and ordered to the U. S. S. "Lancaster."

KERSHNER, EDWARD, *Medical Inspector.*—Detached from Marine Rendezvous, and ordered to Navy Yard, New York.

HERNDON, C. G., *Surgeon.*—Detached from Naval Hospital, New York, and ordered to Marine Rendezvous.

GARDNER, JAMES E., *Passed Assistant Surgeon.*—Ordered to Naval Hospital, New York.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication, or 250 reprints will be furnished instead of payment, provided request for reprints be noted by author at top of manuscript. When necessary to elucidate the text, illustrations will be provided without cost to the author.

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